PROCEEDINGS

OF THE

ROYAL IRISH ACADEMY

VOLUME XXXV

DUBLIN: HODGES, FIGGIS, & CO.
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1918–1920

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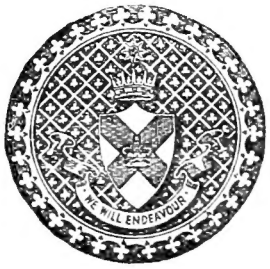
SECTION A.—MATHEMATICAL, ASTRONOMICAL, AND PHYSICAL SCIENCE.



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SECTION A.—MATHEMATICAL, ASTRONOMICAL, AND PHYSICAL SCIENCE.

PROCEEDINGS

OF

THE ROYAL IRISH ACADEMY

PAPERS READ BEFORE THE ACADEMY

I.

THE NATURE OF THE IONS PRODUCED BY PHOSPHORUS

By PROFESSOR J. A. McCLELLAND, D.Sc., F.R.S.,

AND

P. J. NOLAN, M.Sc.

Read February 10. Published October 3, 1919.

Before the discovery of the large ion many observers investigated with conflicting conclusions the electrical conductivity of air in the neighbourhood of phosphorus. E. Bloch,[1] in a paper which contains a history of the work on this subject up to 1904, showed that the conductivity imparted by the phosphorus was due to large ions. The mobility of the ions varied with the rate of drawing air over the phosphorus into the electrical measuring apparatus. The lowest mobility, which was obtained with the slowest air current, was ·00029 cm. per second. He was of opinion that all the ions observed in an experiment were not of the same mobility, and that his mobility numbers were means. His experiments lead him to think that the ions are charged dust particles. L. Bloch[2] found that the ionisation of the air by the phosphorus took place in the region of the phosphorescence, and that ozone was formed in the same place. He decided that the phosphorescence is just like an ordinary flame which accompanies the combustion of phosphorous oxide into phosphoric oxide, and that ionisation by phosphorus is a particular case of ionisation by flame. He pointed out that the fact that higher mobilities are obtained if the ions are examined at shorter times after formation has also been observed in the case of flame ionisation.

In previous papers[3] the nature of the ionisation produced by bubbling air

[1] E. Bloch : Ann. de Chem. et de Phys , vol. iv (1905).

[2] L. Bloch : Ann. de Chem. et de Phys., vol. xxii (1911).

[3] McClelland and Nolan : Proc. Roy. Irish Acad., vol. xxxiii, Sec. A (1916), and vol. xxxiv, Sec. A (1918).

through mercury and through alcohol has been investigated. Many different types of ions were discovered. This present work was undertaken to see if any of these groups were formed in the case of ionisation by phosphorus. It was hoped that light might be thrown on the nature of these groups by the examination of ionisation produced in a way entirely different from bubbling. We did not propose to investigate the exact mechanism of the production of the ionisation: our object was merely to examine the ionisation when produced. Accordingly no observations were taken on the phosphorescence, the production of ozone, or on the various chemical changes which accompany the oxidation of phosphorus.

A cylindrical tube designed to measure mobilities, similar to that described in the previous papers, was used. A small flat piece of phosphorus was scraped free from oxide under water, dried with blotting-paper, and placed in a narrow glass tube. A current of air was drawn along this tube, through the mobility tube and into a gasometer. The quantity of air passing through the mobility tube per second could be deduced from the rate of motion of the gasometer. The time between the formation of the ions at the phosphorus and the measurement of their mobilities was varied by interposing different lengths of tubing between the phosphorus tube and the mobility tube. This time-interval was also varied by changing the rate of the gasometer. A tube containing a plug of cotton-wool was connected to the phosphorus tube so that the room air was filtered before passing over the phosphorus.

The currents to the inner insulated terminal of the mobility tube for different voltages on the outer tube were measured by means of an electrometer. Current voltage curves were plotted, and it was seen that they were formed of a number of straight lines. This indicated that different types of ions were present; each type gave rise to a corner on the curve. The mobilities of the various types were calculated by taking the voltages corresponding to the corners as saturation voltages and applying the formula as described in the previous papers. The current-voltage curves were similar to those obtained when air was bubbled through mercury and through alcohol. Examples of these curves were given in the paper on the ionisation due to mercury; accordingly, none are given here. No difference between the positive and the negative electrification either as regards quantity or quality was noticed during this work: accordingly, no distinction of sign has been made; the observations of positive ions and of negative ions are practically equal in number. Each group of ions was obtained with both positive and negative electrification.

Undried Air.

In the first series of experiments the time-interval between the formation of the ions and the measurement of their mobilities was varied from 1·3 secs to 63 secs. Ordinary room air which was not dried, but which had passed through the cotton-wool plug, was used. The numbers obtained were very steady. This was a rather unexpected result, as E. Bloch was unable to get steady numbers until he dried the air. The results obtained are shown in Table I. The mobilities are given in cms. per. sec. under a field of one volt per cm.

Table I.

Time secs.								
1·3	·017	·0069	·0041	·0021?	·0013	·00066 ·00063	·00033 ·00031 ·00032	
4·6		·0071 ·0081	·0035	·0023?	·0012	·00055	·00031	
16		·0085	·0041	·0022	·0010	·00055	·00031 ·00029	
19			·0037 ·0046 ·0037 ·0049	·0024 ·0024 ·0027	·0011 ·0011 ·0013 ·0013	·00064 ·00068 ·00067	·00031 ·00028 ·00029 ·00032	
63							·00033 ·00030	·00016 ·00014 ·00014 ·00015 ·00014
Means,	·017	·0076	·0041	·0024	·0012	·00063	·00031	·00015

Just as in the case of the ions derived from alcohol we see that the ions due to phosphorus can be divided into a number of groups, and that the mobility of an ion of any particular group does not change with time. As the time-interval is increased, it becomes difficult to observe the faster ions. When 19 secs. have elapsed, the two classes of highest mobilities previously observed cannot be detected. (The numbers given for a time-interval of 63 secs. are not exhaustive. Ions of higher mobilities than ·00031 were present and gave about one-third of the ionisation. Their mobilities were not, however, measured.) With a time-interval of 63 secs. we find an ion of mobility

·00015, which could not be found a few seconds after the formation of the ions. The same question which we discussed in the case of the alcohol ions arises. We may account for the appearance of the ion of mobility ·00015 by supposing that it was present at the very beginning as a small fraction of the total ionisation, and that the faster decay of the smaller ions brought it into prominence. Or, we may suppose that it was not present at first, but that it was formed from some grouping of the smaller ions. It is difficult to decide which is the correct view. As was pointed out in the previous paper, it is difficult, with this method of finding mobilities, to measure and compare the percentages of the different classes present under different conditions. The evidence in this case would not prevent us from thinking that the ion of mobility ·00015 is present originally. In the case of the alcohol ions, we thought that a more likely explanation of the appearance of this ion was that it was formed as time went on. Perhaps the most satisfactory way of looking at this question is to suppose that in both cases the large ions are formed from the small ions, and that the rate of formation depends on the source of the ionisation and on other conditions. If the grouping of the more mobile ions to form the large ions took place very rapidly, we would have a system of ionisation very similar to that contemplated in our first theory. The evidence on the whole indicates that the large ions are formed by grouping, and that the grouping may proceed at widely different rates in different cases. In the case of phosphorus, the grouping takes place so quickly that we cannot assert that the large ion of mobility ·00015 is not present in small quantity after a few seconds. On this view there is no essential difference between the ionisation due to phosphorus and that due to alcohol, although in the former case we can detect the ion of mobility ·00031 after 1·3 seconds, whilst in the latter case this ion was not observed until over a minute had elapsed after bubbling.

In the experiments with time-intervals 1·3 secs., 4·6 secs., and 16 secs., the ion of mobility ·00063 was very prominent. It was present in greater quantity than any other ion, and gave about one-third of the ionisation. In some of the observations the quantity of the ions of mobilities ·0024 and ·0041 was very small. At times, indeed, it was difficult to be certain of their presence.

A mobility tube having a short terminal was used so that the more mobile ions could be more conveniently examined. The time-interval was reduced to ·8 second with the same object. The glass tube which contained the phosphorus was covered with tinfoil and placed in metallic connexion with the mobility tube. The object of this arrangement was to guard against the possibility of the smaller ions being turned back by the field which they

would meet at the end of the mobility tube. This precaution was not considered necessary when dealing with the less mobile ions. The following results were obtained :—

Table II.

·052	·019	·0073
·051	·017	·0066
·048	·018	·0066
·053		
·046?		
·053?		
Means, ·051	·018	·0068

The ion of mobility ·051 was the fastest ion that could be detected and measured. The other two ions are the two smallest ions given in Table I. Thus with the special arrangements we were only able to observe one more group. Saturation did not occur with the ion of mobility ·0068. Measurements of this ion were taken to keep in touch with previous experiments.

During these observations the temperature of the room was sometimes between 7° C. and and 8° C. No ionisation was obtained when the temperature was about this point. Placing the finger on the phosphorus tube for about a minute increased the temperature enough to start the ionisation. The ionisation then continued without any further heating. Barus[1] observed that the ionisation due to phosphorus depended on the temperature, and states that in a room at a temperature of about 9° C. the phosphorus is nearly inert.

A very definite case of variation from day to day in the quality of the ionisation occurred during the observation of the mobility ·0068 (general mean value ·0074). A reading of this mobility was taken in the usual way, and on the next day, when a second determination was desired, the ion could not be observed. The current readings for the different voltages which had given two straight lines now gave one straight line. On the third day, one straight line was again obtained with both positive and negative electrification. The phosphorus was usually scraped about once a week; this was now done to see if the change was due to the formation of oxide. The ion was still absent. On the fourth day, the ion was observed; the ion reappeared without any change in the apparatus or method of working. This variation under apparently the same conditions indicates how difficult it is to obtain

[1] Barus: Phil. Mag., 6th series, vol. ii, 1901.

consistent and reliable results as regards the percentages of ions present under different conditions. Temperature fluctuations could hardly have been the cause of the change. Variations in the humidity of the air might possibly explain the disappearance of the ion. Experiments with partially dried air, carried out later, did not, however, explain the matter.

Dried Air. Small Ions.

Air was drawn through two towers containing calcium chloride, and through two long tubes, which had layers of phosphorus pentoxide on the inside surfaces. This dried air passed through the cotton-wool plug and over the phosphorus. We do not consider the drying produced by any means perfect. It is very difficult to obtain perfect drying when considerable quantities of room-air are being continually drawn in. The drying we used is probably as good as can conveniently be obtained with these conditions. The time-interval was approximately ·8 sec. The results are given in Table III (*a*).

TABLE III (*a*).

·20?	·095	·053	·026	·021	·0042
·25?	·086	·061	·032	·018	·0041
	·086	·059	·026	·017	
	·101	·044	·028	·016?	
	·090	·051	·028	·018?	
	·094?	·060?	·030		
	·090?		·032?		
			·027?		
Means, ·22?	·092	·054	·028	·019	·0041

TABLE III (*b*).

·23	·092
·20	·094
·24	·089
·19	·090
·27?	·095?
Means, ·22	·093

With dried air we get three ions which were not present at the same time-interval with undried air viz. ions of mobilities ·22, ·092, ·028. At

first the only additional ion we could detect was that of mobility ·028, but when the drying was improved the other two appeared. The other ions we observed are ions we have found before. Saturation was not obtained with the ion of mobility ·0041. We failed to discover the ion of mobility ·0074. Later results show that its non-appearance is not due to drying.

In Table III (*b*) some numbers obtained with a time-interval of ·6 sec. are given. More reliable observations for the fastest ion were taken as it was present as a bigger fraction of the ionisation with the shorter interval. No attempt was made to find more mobile ions. Perhaps with shorter intervals smaller ions would appear. It would be difficult, with the present method of working, to measure mobilities much sooner after the production of the ions than ·6 sec.

Dried Air. Large Ions.

In order to examine the larger ions with dried air, the apparatus was arranged so that there was a time-interval of 1·3 secs. The long mobility tube, suitable for measuring low mobilities, was again used. The following mobilities were observed:—

·016 ·0080 ·0042 ·0012 ·00066

These five classes can all be identified with types given above. We now observe the ion of mobility ·0074 (the present reading being ·0080), which we failed to get a few days previously. No essential change has been made in the conditions. The change in the time-interval, or the fact that there is a different mobility tube, should not affect the formation of this ion. The same inexplicable variation has manifested itself with dried, just as with undried, air. The ion of mobility ·0024, which we observed with undried air, is missing now. It represented only a small fraction of the ionisation before. It is probable that its non-appearance on this occasion does not mean a definite change brought about by drying, but is similar to the non-appearance of the ion of mobility ·0074 at different times.

The most prominent ion with dried air is the ion of mobility ·0012. It gives about 50 per cent. of the ionisation. With undried air the ion of mobility ·00063 was the most prominent. Drying favours the observation of the faster ions. Complete saturation was not obtained with the observation ·00066, but the last straight line was so slightly inclined to the voltage axis that we were unable to measure any further mobilities. With undried air, and the same time-interval, we were able to measure the ion of mobility ·00031. This, again, indicates the action of drying in bringing smaller ions into prominence. If we take the grouping theory as right, we may say that the grouping of the mobile ions to form the slow ions is retarded by drying.

Very Large Ions.

An investigation as to whether there were any slower ions than that of mobility ·00015 was carried out. Undried air was used, because with it we get slower ions than with dried air. A number of wide tubes were connected up in the apparatus between the phosphorus tube and the mobility tube to increase the time between formation and measurement. A slow gasometer blast was used with the same object. For some of the experiments a mobility tube having a specially long terminal was used in order to examine the extremely low mobilities. The results obtained are as follows:—

TABLE IV.

·00032	·00014	·000088	·000049
·00029	·00014	·000088	·000052
	·00015	·000088	·000055
	·00016	·000087	·000055
	·00014	·000088	·000055
	·00015	·000077	·000047
	·00016 ?	·000082	·000051
		·000097 ?	·000057
		·000091 ?	·000043 ?
		·000091 ?	·000052 ?
		·000091 ?	
Means, . ·00031	·00015	·000085	·000053

Time-intervals of 3, 5, 9, and 13 minutes were used. Two ions of lower mobility than ·00015 were discovered. These ions are not present in measurable quantity five minutes after the formation of the ionisation; they appeared in the experiments conducted with nine minutes as time-interval. The numbers and curves giving these last two ions were not quite as satisfactory as previous numbers. This was perhaps due to the extreme conditions under which the experiments were carried out. No attempt was made to find slower ions than that of mobility ·000053. There is nothing to indicate that this ion is the largest that is formed. The quantity of electrification due to these slow ions is extremely small compared to electrification due to any of the other ions at the short time-intervals. If the ions of mobilities ·000085 and ·000053 are present at the short time-intervals, they are present in relatively minute quantities. The most probable explanation of their appearance is that they are gradually formed by grouping. It

may be that these ions are formed in other cases of ionisation. One could account for the fact that they have not been observed by two considerations. Firstly, they are formed in such small quantities that their presence would be hard to detect. Phosphorus is one of the most active ionisation agents, and so they are more readily observed with it. Secondly, a very long time is necessary for their formation. The time for formation varies in different cases. It is interesting to note in this connexion that the ion of mobility ·00031 appeared much sooner with phosphorus than with alcohol or mercury. Accordingly we suggest that it is quite possible that in other cases of ionisation these very large ions are formed in minute quantities at long intervals after the ionisation has been formed.

It might be objected that these ions of very low mobilities are not similar to the ordinary large ions. It is well known that phosphorised air contains a large quantity of very big nuclei. These very large ions might be supposed to consist of large nuclei of some oxide of phosphorus carrying many times the electronic charge. We reject this view for two reasons. In the first place, the continuity between these ions and the ions of higher mobilities leads us to believe that they are formed in the same manner and are of the same general nature. In the second place, one of these larger ions, that of mobility ·00015, has been observed in air bubbled through alcohol, and we have no reason to believe that very large nuclei are produced when air is ionised by bubbling.

The large ion which occurs in the atmosphere has a mobility of the order ·0003 cm. per second. There has been a general opinion that there is a certain degree of stability associated with the ion of this size. An ion of this mobility was observed with phosphorus, but no special difference marked it out from the other ions. Furthermore, we get ions larger than the atmospheric ion, viz. the ions of mobilities ·00015, ·000085, ·000053. As we pointed out already, we have no proof that the ion of mobility ·000053 is by any means the final ion. It is remarkable that, in spite of its wide occurrence and stability, the size associated with the mobility ·0003 is not the largest possible.

We can place all the mobilities observed in a certain number of classes. The following are the means of the observations. Doubtful numbers are excluded, and a few numbers not given in the paper are included in calculating the means.

·22	·092	·053	·028	·018	·0074
	·0041	·0024	·0012	·00064	·00031
		·00015	·000085	·000053	

Discussion of Results.

The mobilities of the ions produced by phosphorus are given in column G, Table V. The other columns were given, in the manner shown, in the paper on the ions due to alcohol. They are reproduced here to show that the agreement, indicated at the time, between the mobilities of the ions due to different agents includes also the phosphorus ions. Column A shows the results of J. J. Nolan[1] on the mobilities of ions due to spraying distilled water. Only the mobilities smaller than 1·09 are given. Columns B, C, D, and E give the mobilities of the ions produced by bubbling air through mercury under different conditions. Column F shows the mobilities of the ions due to bubbling air through alcohol. We see from this table that the ions dealt with in the present paper correspond to ions previously observed, the only exceptions being the two slowest ions. The agreement between the numbers throughout is so good as to leave no doubt but that the phosphorus ions are built up in the same way as the ions produced by bubbling and spraying.

E. Bloch considers that all the properties of phosphorised air indicate that the ions in it are some oxides of phosphorus collected around charged nuclei, and L. Bloch is of a similar opinion. It is very difficult to reconcile this view with our conclusion that the phosphorus ions are very similar to the ions due to bubbling and spraying. As there is every reason to believe that the latter ions are composed of water, we conclude that the phosphorus ions are also composed of water. It is possible that the original charged nucleus is formed of an oxide of phosphorus, and that the various ions are formed from this by accretions of water. The similarity between the ionisation from the various sources permits us to assume a different nucleus as the original starting-point of the ions; it does not allow us to postulate a different growth system.

The general result of drying, both among the slow and the fast ions, was to bring the more mobile ions into prominence. No other deduction, such as a division of the ions into those which occur only with dry air and those which are formed only with undried air, can be made from our experiments. Investigations on the effect of drying on the phosphorus ionisation, aiming at a much higher degree of drying, are at present being undertaken.

[1] Proc. Roy. Irish Academy, vol. xxxiii, Section A, 1916.

Table V.

Water	Mercury				Alcohol	Phosphorus
	Long Time-Interval		Short Time-Interval			
	Undried	Dried	Undried	Dried		
A	B	C	D	E	F	G
1·09					1·10 ?	
·53					·50	
				·32	·31	
·24			·20		·22	·22
·12					·12	
				·092		·092
·046			·048	·043	·049	·053
		·024				·028
·013	·014		·02		·017	·018
		·0068		·0064	·0077	·0074
·0043	·0040		·0045		·0040	·0041
		·0021		·0022	·0023	·0024
·0010	·0013		·0013		·0014	·0012
		·00056			·00063	·00064
·00038	·00034				·00034	·00031
					·00015	·00015
						·000085
						·000053

Although the results obtained in this work have not fulfilled our expectations as regards adding to previous ideas on the nature of group ionisation, our knowledge of phosphorus ionisation has been considerably extended. We hope that the further experiments, which will enable a high degree of drying to be reached, may throw light on the nature of these numerous groups of ions.

Summary.

1. Air which has passed over phosphorus is found to contain ions of the following mobilities: ·22, ·092, ·053, ·028, ·018, ·0074, ·0041, ·0024, ·0012, ·00064, ·00031, ·00015, ·000085, and ·000053 cm/sec in a field of 1 volt cm.

These ions have not been all observed under the same conditions of experiment. Some of the more mobile ions have only been obtained with dried air, and a short interval between formation and measurement. Some of the slower ions have only been found with undried air, and a long time-interval.

2. These ions are obtained with both positive and negative charges. The numbers of positive and negative ions are always practically equal.

3. The mobility of any group of ions does not change with time.

4. With dried air the ions of higher mobilities become more prominent. The values of the mobilities remain unchanged.

5. Reasons are given for considering that the ions formed by phosphorus are mainly composed of water.

II.

FURTHER OBSERVATIONS OF THE ELECTRIC CHARGE ON RAIN.

By PROFESSOR J. A. McCLELLAND, D.Sc., F.R.S.,

AND

A. GILMOUR, M.Sc.

Read January 12. Published April 26, 1920.

The whole subject of Meteorology has in recent years attracted a great deal of attention in view of the increasing importance of the knowledge of meteorological conditions in the upper atmosphere. Since 1890 much work has been done on the electricity of atmospheric precipitation. The data obtained by various workers are, like all meteorological data, somewhat irregular and hard to co-ordinate, and show how complicated the subject is. Simpson[1] gives the following list of workers, and references to their publications :—

Place.	Observer.	Publication.
Wolfenbeütel, Brunswick.	Elster & Geitel,	Wien. Ber. xcix, p. 421 (1890). Terr. Magn. iv, p. 15 (1899).
Göttingen,	Gerdien,	Münch. Ber. xxxiii, p. 367 (1903). Phys. Zeit. iv, p. 837 (1903).
Vienna,	Weiss,	Wien. Ber. cxv, Abt. ii a, p. 1299 (1906).
Porto Rico,	Kohlrausch,	Wien. Ber. cxviii, Abt. ii a, p. 25 (1909)
Simla (India),	Simpson,	Phil. Trans. A. ccix, p. 379 (1909). Proc. Roy. Soc. A. lxxxiii, p. 394 (1910).
Potsdam,	Kähler,	Phys. Zeit. ix, p. 258 (1908). Veroff d. k. Preuss Met. Inst. No. 213 (1909).
	Schindelhauer,	Ditto, No. 263 (1913).
Graz,	Benndorf,	Wien. Ber. cxix, p. 89 (1910). Sitz. Ber. K. B. Akad. d. Wiss. München, p. 402 (1912).
Puy-en-Velay,	Baldit,	Le Radium viii (April, 1911). Ditto ix (March, 1912).
Buenos Aires,	Berndt,	Phys. Zeit. xiii, p. 151 (1912). Veroff d. Deutsch. Wiss. Vereins in Buenos Aires, No. 3 (1913).
Dublin,	Nolan & McClelland,	Roy. Irish Acad. Proc. xxix, A, p. 81 (1912). Ditto xxx, A, p. 61 (1912).

[1] Simpson, Phil. Mag., vol. xxx, p. 1. July, 1915.

He summarizes the outstanding results of their work as follows :—

A.—*Non-thunderstorm Rain.*

1. Rain is sometimes positively and sometimes negatively charged.

2. About 90 per cent. of the rain is positively charged.

3. The normal potential gradient is nearly always reversed during the rain.

B.—*Thunderstorm Rain.*

4. The precipitation is sometimes positively and sometimes negatively charged.

5. More positive than negative electricity is brought down by the precipitation.

6. The charges per unit mass of the precipitation and the vertical electrical currents produced by its fall are much larger than with non-thunderstorm rain.

7. The potential gradient undergoes large and rapid changes of sign, and on the whole the potential gradient is more often reversed than not.

C.—*Snow.*

8. Snow is sometimes positively and sometimes negatively charged.

9. In Simla positive electricity was in excess, while in Potsdam an excess of negative electricity was observed.

10. A given weight of snow may be more highly charged than the same amount of rain, even in a thunderstorm.

11. High values of the potential gradient, both positive and negative, occur during snowfall.

Different observers, however, do not agree in details, and more work on the subject is needed.

The work described in this paper was done at University College, Dublin. The apparatus employed was essentially the same as that used by M'Clelland and Nolan.[1] The receiving vessel, A, was made of zinc, conical-shaped, 81·3 cm. in diameter. Attached to it, and in metallic connexion with it, was a tipping-bucket, B, arranged to discharge itself when 22 c.c. of water had run into it from the receiving vessel. This part of the apparatus rested on a tripod, from which it was insulated by a paraffin wax ring. The whole was enclosed in a covered wooden box, measuring about 1 metre each way, with a zinc top, sloped so as to throw off the rain which fell on it. A circular

[1] M'Clelland and Nolan, Roy. Irish Acad. Proc., vol. xxix, A. Feb., 1912.

opening was cut in this zinc, the edge of which was turned up to a height of about half a centimetre.

On the top of this opening was placed a zinc cylinder, 91 cm. high and 91 cm. in diameter. All this zinc and wooden box were connected to earth. The receiving vessel was connected to a Dolezalek electrometer by a copper wire, enclosed in earthed metallic tubes, from which it was insulated by paraffin wax. The capacity of the electrometer, receiving vessel, and connexions was ·0003 microfarads. The sensitivity of the electrometer was about 1600 mm. divisions per volt. When making measurements on the

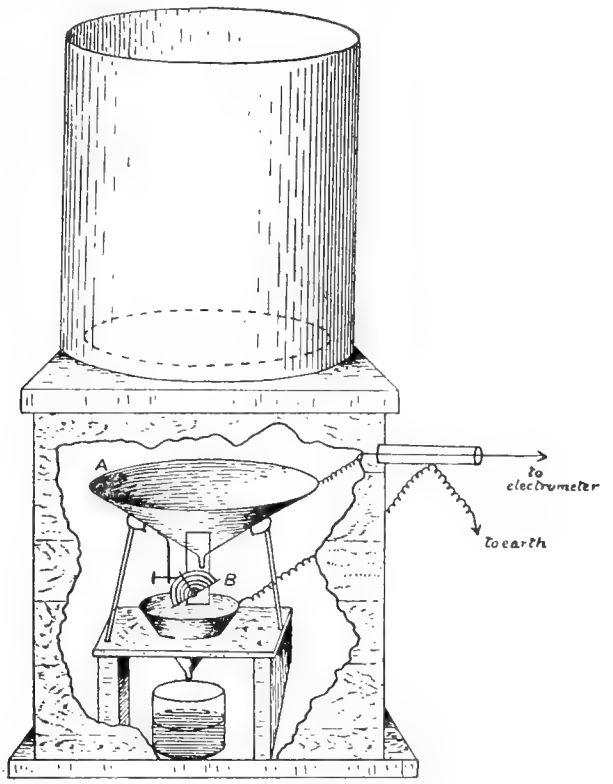

Fig. 1.

rain it was found necessary to add to the electrometer capacities varying from ·001 to ·5 microfarads. The charge on the rain was calculated from the observed increase in potential of the apparatus, and the capacity. The discharge of the tipping-bucket was generally heard, but was always notified by its automatically earthing the apparatus. As a precaution, the apparatus was earthed independently at each discharge of the tipping-bucket.

The apparatus was set up in a small quadrangle at the back of the college.

The potential gradient in this quadrangle would be small owing to the high buildings surrounding it, and so the apparatus was well protected from the earth's field. Care was taken to place the apparatus so that no water from the adjoining roofs splashed into it.

The results were obtained by personal observation between 1st January and 31st August, 1919. The type of rain and on many occasions the size of the drops were observed. No use was made of self-recording apparatus, so that only a portion of the rainfall was obtained. However, the results contained in this paper are probably fairly representative of the year's rain. These results have been divided up into (1) non-thunderstorm rain, (2) thunderstorm rain, (3) sleet, (4) snow and hail.

1. *Non-thunderstorm Rain.*

This kind of precipitation is, of course, far more usual in Dublin than the others. During the year 1342 observations[1] on it were obtained corresponding to 29,524 c.c. of rain-water. This rain fell on 49 days in 82 "falls" or showers. Of these, 987 observations were on positive rain. This is equivalent to 21,714 c.c. of rain-water, or 73·5 per cent. of the total rain examined. The charge per c.c. varied as under:—

Positive Rain.

Month.	No. of observations, showing charge per c.c. in E.S. units.						Total No. of obs. on positive rain.	Average charge per c.c. in E.S.U.
	< ·1	·1–·2	·2–·3	·3–·4	·4–·5	> ·5		
January, . .	74	51	28	18	8	11	190	·24
February, . .	97	60	43	20	4	2	226	·19
March, . .	71	17	8	6	4	9	115	·19
April, . .	4	7	5	3	4	7	30	·53
May, . .	8	2	0	0	0	0	10	·05
June, . .	24	0	0	0	0	0	25	·044
July, . .	15	1	1	3	2	2	24	·19
August, . .	275	59	12	15	1	5	367	·09
Totals, .	568	198	97	65	23	36	987	·17

The remaining 355 observations, corresponding to 7810 c.c. of rain-water, or 26·5 per cent. of the rain examined, were on negatively charged rain.

[1] An "observation" means one filling of the tipping-bucket.

Negative Rain.

Month.	No. of observations, showing negative charge per c.c. in E.S.U.						Total No. of obs. on negative rain.	Average charge per c.c. in E.S.U.
	< ·1	·1–·2	·2–·3	·3–·4	·4–·5	> ·5		
January, . .	12	3	0	1	0	2	18	·19
February, . .	7	1	0	0	0	0	8	·03
March, . .	83	4	5	0	0	6	98	·08
April, . .	0	0	0	2	1	4	7	1·02
May, . .	14	0	0	0	0	0	14	·015
June, . .	1	0	2	0	2	0	5	·30
July, . .	155	2	1	0	0	2	160	·034
August, . .	33	2	4	1	1	4	45	·14
Totals, .	305	12	12	4	4	18	355	·09

Perhaps one of the most noticeable and unexpected features of the above tables is the increasing tendency for the rain to be negatively charged towards summer. This may be seen even more readily from the following table:—

Month.	Total No. of observations.	Percentage of + rain.	Percentage of – rain.	Average + charge per c.c.	Average – charge per c.c.
January, .	208	91·3	8·7	·24	·19
February, .	234	96·6	3·4	·19	·03
March, .	213	54·0	46·0	·19	·08
April, .	37	81·0	19·0	·53	1·02
May, .	24	41·6	58·4	·05	·015
June, .	30	83·3	16·7	·44	·30
July, .	184	13·0	87·0	·19	·034
August, .	412	89·0	11·0	·09	·14
Totals,	1342	73·5	26·5	·17	·09

During the later months of the period, but especially during July, there was a good deal of rain of the type classified by M'Clelland and Nolan[1] as

[1] *Loc. cit.*

"fine" rain. This rain is made up of very small droplets, the volume of the largest not being greater than 8×10^{-5} c.c. It was found by them to be always negatively charged, and has been so in every instance in the present investigation. It is generally very light, which makes the obtaining of reliable observations on it rather difficult. Indeed a shower of it, lasting an hour, often failed to yield more than a few c.c. We were fortunate, however, in getting very heavy rain of this type in July and the early days of August. There was quite a downpour, lasting almost throughout the night of July 21, the rate of rainfall being for a considerable time greater than 2·5 mm. per hour. The charge was negative throughout the night, and varied from ·001 to ·04 E.S.U. per c.c. The abundance of this "fine" rain in July accounts for the high percentage of negatively charged rain in that month, and also to some extent for the percentage of negative rain in the period under observation. This is considerably higher than has been found by any of the recent observers. Schindelhauer[1] found 92 per cent. of the rain observed by him positively charged; Baldit,[2] 85 per cent.; M'Clelland and Nolan, 82·6 per cent.; as has been stated above, the percentage of positive rain in the present case is 73·5. If we neglect the July rain, the percentage of positive rain is 86, which is nearer that found by other observers.

Most of the rain observed during the other months was of the "mixed" type, i.e., it was a mixture of drops of all sizes. It was generally positive; but the charge sometimes became negative. This change from positive to negative seemed to occur irregularly at any period of the downpour or shower, though there was a tendency for the negatively charged rain to be connected with a slower rate of rainfall, and perhaps with an increasing number of smaller drops, though negative rain sometimes occurred with quite large drops. The heaviest rain of this type was almost always positively charged. The transition from positive rain to negative was never abrupt. The charge per c.c. always decreased before the change, and often fluctuated from positive to negative for several minutes. During these fluctuations the charge per c.c. was always small. Probably in such cases some drops are positive and some negative.

From the tables given above it will be seen that the positive charge is generally much larger than the negative on the average about double. The months of April and June would appear to be exceptions, but in both these months very few observations were got, and in each case all the negative

[1] Schindelhauer, Veroff d. k. Preuss Met. Inst., No. 263. 1913.
[2] Baldit, Le Radium viii. April, 1911. ix. March, 1912.

rain occurred on a single occasion. It will also be seen that the highest charges per c.c., both positive and negative, were obtained in March and April, generally in short showers. A positive charge of 10·1 E.S.U. per c.c. was got on a little shower on March 27th, and 5·2 E.S.U. per c.c. on a shower on April 14th, while both positive and negative charges of 1 to 3 E.S.U. per c.c. were obtained on several occasions in April.

On almost every occasion the times between successive discharges of the tipping-bucket were noted by means of a stop-watch, so that it is possible to investigate the relation between the charge and the rate of fall, as well as the vertical current per square cm. due to the rain.

Simpson[1] and Baldit[2] found the highest positive and negative charges associated with light rain, while M'Clelland and Nolan[3] found the highest charges connected with heavy rain. In the case of positively charged rain the present investigation seems rather to support M'Clelland and Nolan, as will be seen from the following tables, showing the number of observations obtained for different times of discharge of the tipping-bucket and the corresponding average charges per c.c. The different times of discharge of the tipping-bucket were taken as being more convenient for the purposes of calculation than the rate of fall. The corresponding rates of fall are given afterwards.

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[1] Simpson, Phil. Trans. A, ccix (1909).
[2] *Loc. cit.*
[3] M'Clelland and Nolan, Roy. Irish Acad. Proc. xxx, A (1912).

Positive Rain.

Time to tip Bucket.	< 1'		1' – 2'		2' – 3'		3' – 4'		4' – 5'		5' – 6'		> 6'	
Month.	No. of obs.	Average charge per c.c.	No. of obs.	Average charge per c.c.	No. of obs.	Average charge per c.c.	No. of obs.	Average charge per c.c.	No. of obs.	Average charge per c.c.	No. of obs.	Average charge per c.c.	No. of obs.	Average charge per c.c.
January, . .	52	·178	40	·315	36	·329	20	·242	9	·170	3	·138	9	·117
February, .	20	·070	59	·132	59	·178	24	·166	14	·173	6	·102	21	·210
March, . .	4	·279	13	·080	20	·064	15	·200	14	·150	13	·097	20	·090
April, . . .	—	—	2	681	4	·201	5	·166	3	·336	—	—	2	·704
May, . . .	—	—	2	·011	1	·079	—	—	1	·047	1	·006	4	·081
June, . . .	2	·106	6	·041	3	·060	3	·053	2	·018	2	·008	4	·044
July, . . .	11	·243	6	·064	2	·023	1	·920	—	—	—	—	—	—
August . .	178	·059	135	·109	26	·139	10	·110	—	—	—	—	2	·025
Totals, . .	257	·095	263	·145	151	·187	78	·190	43	·166	25	·092	62	·149

Negative Rain.

Time to tip Bucket.	< 1′		1′ – 2′		2′ – 3′		3′ – 4′		4′ – 5′		5′ – 6′		> 6′	
Month.	No. of obs.	Average charge per c.c.	No. of obs.	Average charge per c.c.	No. of obs.	Average charge per c.c.	No. of obs.	Average charge per c.c.	No. of obs.	Average charge per c.c.	No. of obs.	Average charge per c.c.	No. of obs.	Average charge per c.c.
January, . .	—	—	2	·842	2	·038	2	·074	—	—	1	·022	4	·070
February, . .	3	·029	2	·013	4	·013	—	—	—	—	1	·031	3	·059
March, . . .	4	·079	16	·126	16	·027	14	·021	10	·025	7	·023	26	·083
April, . . .	—	—	1	·510	1	·318	—	—	—	—	—	—	1	·730
May, . . .	—	—	—	—	—	—	—	—	—	—	1	·015	12	·015
June, . . .	1	·006	—	—	1	·048	1	·255	1	·268	—	—	2	·456
July, . . .	28	·017	58	·037	31	·032	18	·031	2	·013	7	·036	7	·119
August, . .	17	·100	14	·078	2	·152	2	·183	1	·900	1	·738	2	·017
Totals, . .	53	·049	93	·080	57	·039	37	·043	14	·103	18	·067	57	·078

The above tables would seem to show that in the case of positive rain the highest charge per c.c. occurs with rather heavy rain, the maximum appearing fairly generally in the table when the rate of fall is from ·6 to 1 mm. per hour. The following table gives the rate of fall corresponding to times of discharge of tipping-bucket :—

Time to tip bucket in mins.	1′	2′	3′	4′	5′	6′
Equivalent rate of fall in mm. per hour.	2·5	1·25	·83	·625	·5	·42

With negative rain the light rain seems to be most heavily charged, but observations on it are less numerous, and therefore not so reliable, since a very few high values make a great difference in the totals, as in second column in table.

It seems to be customary, in papers on the electricity of rain, to express the charge brought down as current per square cm. of the earth's surface.

Positive Rain.

Month.	Current in Amperes $\times 10^{-15}$ per sq. cm.		
	< 1	1 – 5	> 5.
January (No. of Obs.),	53	95	13
February, ,,	79	105	8
March, ,,	72	24	3
April, ,,	5	9	2
May, ,,	8	0	1
June, ,,	21	0	0
July, ,,	7	6	7
August, ,,	130	200	24
Totals, . .	375	439	58

Negative Rain.

Month.	Current in Amperes × 10^{-15}.		
	< 1	1 – 5	> 5
January (No. of Obs.),	10	0	0
February, ,,	12	1	0
March, ,,	76	7	2
April, ,,	0	2	2
May, ,,	13	0	0
June, ,,	3	2	0
July, ,,	150	3	2
August, ,,	25	8	4
Totals, . .	289	23	10

The values contained in the above tables are possibly slightly too low, owing to the fact that the zinc cylinder surrounding the receiver may be expected to ward off a small portion of the rainfall from it. As the small quadrangle in which the apparatus was placed is almost completely surrounded by high buildings, the apparatus was well protected from the winds, and this error is probably very small.

The tables give a striking illustration of the fact that in non-thunderstorm rain as well as in thunderstorm rain, investigated by Simpson,[1] "the greater the current the more likely is it to be carried by positively charged rain."

Uncharged rain was never found during the observations. It was always necessary to use a capacity of at least ·001 microfarads on the electrometer, so that the charge per c.c. on the rain was always greater than ·00007 E.S.U., the lowest that could be measured with this capacity. As a matter of fact, a charge per c.c. less than twenty times this was exceedingly rare.

The amount of positive electricity brought down was 3691·4 E.S.U., while the amount of negative electricity was 702·9 E.S.U., so that 84 per cent. of the total electricity brought down by the rain was positive.

Thunderstorm Rain.

Only two thunderstorms occurred during the time these observations were being taken. Both took place late in the evening. The first was on

[1] Simpson, Phil. Trans. A, vol. ccix. 1909.

the night of May 14th. A slight shower had fallen earlier in the evening but the first peal of thunder was heard about 9.50 p.m.[1] From 10.30 p.m. till 1 a.m. the thunder and lightning were almost incessant. Rain did not begin to fall till about 10.20, so that it was possible to get observations throughout the entire thunderstorm. At first the rain was very light, but became exceedingly heavy from 10.40 to 11 o'clock. It continued to be fairly heavy, with one or two lulls throughout the storm. The charge at first was negative and high, 3-6 E.S.U. per c.c. After about ten minutes it became positive, but the positive charge per c.c. was not so large, generally 1–2 E.S.U. The charge changed in sign several times, and during these changes the values were sometimes quite low. A negative charge of 5 E.S.U. per c.c. was got again at 12.45, and from 12.50 till near the end a positive charge of 2–5 E S.U. per c.c. was recorded.

Sign of charge,	Number of observations, showing charge per c.c.			
	1 E. S. U.	1-3 E. S. U.	3-5 E. S. U.	Total No. of observations.
+	17	28	4	49
−	14	12	12	38

Average positive charge per c.c. = 1·62 E.S.U.
Average negative charge per c.c. = 2·03 E.S.U.

It is perhaps worthy of note that in this storm the highest charges, both positive and negative, occurred with the heaviest rain. The rate of fall between 10.40 and 11 o'clock was over 5 mms. per hour.

The other thunderstorm occurred after 10 p.m. on June 4. Only two short, heavy showers fell. The first of these was missed. The second, lasting about ten minutes, gave seven readings, of which five were negative and two (not consecutive) positive.

Average positive charge per c.c. = ·45 E.S.U.
Average negative charge per c.c. = ·43 E.S.U.

Highest negative charge per c.c. in shower = 1·08 E.S.U.
Highest positive charge per c.c. in shower = ·73 E.S.U.

In both these storms the rain was sometimes positively charged, sometimes negatively; and the charge per c.c. was in each case larger than is usually obtained with non-thunderstorm rain.

[1] Ball lightning observed. M'Clelland and Gilmour: Nature. 12th June, 1919.

Taking the two storms together—

Volume of positive rain = 1122 c.c.s.
Volume of negative rain = 946 c.c.s.
Percentage positive = 54·2.
Amount of positive electricity brought down = 80·28 E.S.U.
Amount of negative electricity brought down = 79·29 E.S.U.
Percentage positive = 50·3.

The amount of positively charged rain is slightly in excess; but the amounts of positive and negative electricity brought down are almost equal.

Sleet.

Some showers of sleet, i.e., a mixture apparently of raindrops and snow, fell in January and March. In these showers the charge varied almost continuously from positive to negative, and *vice versa*, being generally, though not always, positive when the precipitation was in the form of rain, and generally negative when the rain became mixed with snow, or when snow alone fell for a few minutes. This sleet melted as quickly as it fell, so that its charge was easily measurable in the same manner as rain.

Positive Precipitation.

Date.	No. of observations.	Average charge per c.c. in E. S. U.	Description.
January 4, . .	4	·26	Rain.
March 4, . .	29	·057	Rain.
,, 4, . .	16	·073	Snow.
,, 28, . .	3	·018	Rain.

Negative Precipitation.

Date.	No. of observations.	Average charge per c.c. in E. S. U.	Description.
January 4, . .	2	·82	Rain and sleet.
,, 4, . .	2	2·11	Snow.
March 4, . .	2	·061	Rain.
,, 4, . .	7	·045	Sleet.
,, 21, . .	8	·063	Sleet.
,, 24, . .	2	·048	Sleet.

From this table it would appear that the negative charge on sleet is very similar in magnitude to the negative charge on rain: but the positive charge is much smaller than the corresponding one. It is noteworthy that a decided change in the form of precipitation is generally accompanied by a change in the sign of the charge.

Hail and Snow.

A good many showers of hail and snow were observed, especially in March and April. The apparatus is not well suited for measuring the charge on these forms of precipitation. It was possible, however, to measure accurately the total charge on the snow and hail which fell into the apparatus, melt them afterwards with a known volume of warm water, and thus get the increase in volume of the water in c.cs. The following observations were obtained in this way.

Date.	Vol. in c.c.	Average charge per c.c. in E. S. U.	Sign of charge.	Description.
January 4,	66·0	·382	−	Small hailstones.
March 24,	22·5	·156	−	,, ,,
,, 24,	9·0	2·18	−	,, ,,
,, 24,	11·6	1·09	+	Large snow and hail (mixed)
,, 27,	37·1	5·41	+	Hail and large rain.
,, 28,	1150·0	·093	−	Snow.
,, 29,	9·0	2·06	−	Snow.
,, 29,	190·0	1·085	+	Hail.
,, 29,	30·0	1·18	+	Hail.
,, 31,	1280·0	2·47	+	Hail.
April 1,	246·0	6·18	−	Small hailstones.
,, 1,	176·0	6·50	+	Hail.
			−	Snow and rain.
,, 7,	110·0	·116	+	Hail.
May 3,	150·0	·082	−	Small hailstones.

The change from small hailstones to large hailstones is always very abrupt when it occurs, and is always accompanied by an equally abrupt change in the sign of the charge. This is perhaps the most remarkable characteristic of these showers. It proved rather disconcerting at first, so that for this reason, or owing to the use of too low a capacity, several showers were missed, or the charge not accurately determined and such

numbers have not been included in the table. We think, however, that the above table is fairly representative of the snow and hail which fell, except that on one or two occasions large snowflakes were positively charged, though it is pretty evident that the charge on snow was generally negative. Large hailstones were always positively charged, and small hailstones negatively. These small hailstones are about the usual size of raindrops, and generally colourless. The only change in the form of precipitation which did not cause a change in the sign of the charge was on March 27, when hail appeared to change to large raindrops without any alteration either in the sign or magnitude of the charge. It will be observed that the charge per c.c. is much larger in the case of snow and hail than in the case of rain.

Size of Drops.

In order to find whether the sign or magnitude of the charge on the rain is influenced by the size of the raindrops, some measurements of the latter were undertaken. Work has been done on the sizes of raindrops by Bentley[1] and Defant.[2] Bentley computed the sizes from the flour-pellets formed by allowing the raindrops to fall into flour spread on a tray. The method adopted by Defant, viz., Weisner's, consisted in receiving the drops on filter paper, and allowing them to spread. In the present case the latter method was employed.

A mixture of one part of eosin to at least thirty of talc powder was rubbed into the filter paper. When a drop of water fell on this, it left a permanent pink circular stain as far as it spread. The relation between the volume of the drop and the diameter of the stain was found by allowing drops of known volume to fall on the filter paper, and measuring the stain produced. At first it was thought that drops as small as raindrops could be got from glass tubing drawn to a very fine point, and dipped in paraffin wax to prevent the water from wetting the glass. On trial it was found that the vast majority of raindrops were smaller than the smallest drops obtained in this way. Spraying water was then tried, but the number of drops falling on a given small portion of the area sprayed over was too variable.

The method finally employed was as follows:—The water was allowed to drop at constant pressure from a glass tube drawn to a very fine point, which was dipped in paraffin wax. This tube was enclosed in an outer tube, open at the lower end, through which a steady blast of air was driven by a compression pump. The blast forced the drops from the end of the inner tube

[1] Monthly Weather Review. October, 1904.
[2] Akad. Wiss. Wien, Sitz Ber. May, 1905.

before they could grow large. The drops obtained were found to be very uniform.

To measure them, 100 drops were counted as they fell into a weighed beaker; about 20 were then allowed to fall on the prepared filter paper; then another 100 were counted into the beaker, and the beaker weighed again. The volume per drop was thus obtained. The strength of the blast was then altered, giving drops of a different size, and the experiment repeated. Drops varying from $\cdot 04 \times 10^{-3}$ c.c.s to 2×10^{-3} were obtained in this way. Drops larger than this could be got without the blast by using tubes of different bores, and altering the pressure, i.e. the head of water. The diameters of the stains were measured by a travelling microscope, and the curve, volume of drop against diameter of stain, plotted.

Raindrops taken from a great many showers have been examined, as well as the stains left by some hailstones and snowflakes. No drops were got from the thunderstorm rain.

The volume of the largest drops examined was about 5×10^{-3} c.c.s. Drops of this size—indeed, drops greater than $2 \cdot 5 \times 10^{-3}$ c.c.s—are rather exceptional, the great majority of raindrops being smaller than 1×10^{-3} c.c.s. Some as small as $\cdot 03 \times 10^{-3}$ c.c.s have been measured. At this stage the roughness of the paper began to become comparable with the size of the stain, rendering the stain slightly irregular, and making accurate measurements difficult. Drops smaller than this certainly fell. In the case of the very large drops, the drop was inclined to "splash" when it fell on the paper. Though the spreading of the drop generally covered this "splashing," the stain was left somewhat irregular. The volume, however, could be determined with a fair amount of accuracy.

Drops of all sizes were found, generally very much mixed. No relation was found between the charge per c.c. and the size of the drop, except that in the case of the "fine" rain, which is always negatively charged, the volume of the largest drop was less than $\cdot 08 \times 10^{-3}$ c.c.s. Several papers exposed in this rain have been examined, each recording hundreds of drops. Only about half a dozen altogether had a volume greater than this, though the largest drops on each paper were picked out and measured. Small drops of this size occur in every kind of rain. Papers exposed when only large drops seemed to be falling showed that these small drops were present. Negative rain sometimes contains as large drops as positive rain, but there seems to be a tendency for the drops to be more uniform in the case of positive rain.

An attempt was made to measure some snowflakes in the same manner. They were found to consist of small weights from about 9 m. gms. down to

that of the smallest raindrop; but the stains left by them were more irregular than those of the raindrops.

Very regular stains, which could be accurately measured, were left by the hailstones. The small negatively charged hailstones varied between the same limits as the raindrops, generally less than 2·5 m. gms. in weight. The large hailstones were very much larger than this. On one occasion some of them weighed about 50 m. gms., and many between 30 and 40 m. gms.

SUMMARY.

1. Rain was never found uncharged.

2. Of non-thunderstorm rain tested—
   - (*a*) 73·5 per cent. was positively charged.
   - (*b*) 84 per cent. of electricity brought down was positive.
   - (*c*) Average positive charge per c.c. = ·21 E. S. units.
     Average negative charge per c.c. = ·08 E. S. units.
   - (*d*) Average vertical current due to positive rain = $1{\cdot}6 \times 10^{-15}$ amps. per square cm.
     Average vertical current due to negative rain = $\cdot 5 \times 10^{-15}$ amps. per square cm.
   - (*e*) Rain consisting of droplets smaller than $\cdot 08 \times 10^{-3}$ c.c.s was always negatively charged.
   - (*f*) No general relation was found between charge and size of drops.

3. Thunderstorm rain (two storms examined)—
   - (*a*) 54·2 per cent. positively charged.
   - (*b*) 50·3 per cent. of electricity brought down was positive.
   - (*c*) More highly charged than ordinary rain.

4. Hail and snow—
   - (*a*) Snow sometimes positively charged; excess negative.
   - (*b*) Small hailstones always negatively charged.
   - (*c*) Large hailstones always positively charged.
   - (*d*) Charge per c.c. higher than on rain; often higher than on thunderstorm rain.

III.

A STUDY OF THE VECTOR PRODUCT $V\phi a\theta\beta$.

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[communicated by professor A. W. conway, f.r.s.]

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CONTENTS.

1. *Introduction.*

If ϕ and θ are two linear vector functions, and if a and β are any two vectors, the vector product $V\phi a\theta\beta$ possesses many properties dependent on the important invariants discovered by the late Professor C. J. Joly; in fact, this product, being one of the simplest expressions which can be written down containing two linear vector functions, appears well adapted to show the meaning and application of Joly's invariants.

The special problem I propose to study in this paper is suggested by a relation long ago proved by Hamilton, who showed (Elements, Art. 350) that the expression

$$V\phi a\beta + Va\phi\beta \tag{1}$$

is a linear vector function of $Va\beta$; is equal, in fact, to

$$(m'' - \phi')\, Va\beta, \tag{2}$$

where m'' is an invariant of ϕ.

I propose to prove that the expression

$$V\phi a\theta\beta + V\theta a\phi\beta \tag{3}$$

is a linear vector function of $Va\beta$, and to study the form of this function. It will be found to involve Joly's invariants of ϕ and θ.

2. *Proof that* $V\phi a\theta\beta + V\theta a\phi\beta$ *is a function of* $Va\beta$.

The main proposition follows at once from Hamilton's definition of the *conjugate* of a linear vector function: if ψ be any such function, its conjugate ψ' satisfies the relation

$$S\rho\psi\sigma = S\sigma\psi'\rho, \tag{4}$$

where ρ and σ are any two vectors.

Consider now the term $V\phi a\theta\beta$. Since it is linear in β, we may take ρ any vector whatever, and transform as follows:—

$$\begin{aligned} S\rho V\phi a\theta\beta &= -\, S\phi a\, V\rho\theta\beta \\ &= -\, Sa\phi' V\rho\theta\beta, \text{ as in (4)}, \\ &= -\, Sa\psi\beta, \text{ say}, \end{aligned} \tag{5}$$

if we agree to write

$$\psi\beta = \phi' V\rho\theta\beta. \tag{6}$$

Again, starting with the term $V\theta a\phi\beta$, we may write

$$\begin{aligned} S\rho V\theta a\phi\beta &= +\, S\phi\beta\, V\rho\theta a \\ &= +\, S\beta\phi' V\rho\theta a, \text{ as in (4)}, \\ &= +\, S\beta\psi a, \text{ by (6)}, \\ &= +\, Sa\psi'\beta, \text{ by (4)}. \end{aligned} \tag{7}$$

Adding the two results (6) and (7) gives

$$S\rho[V\phi a\theta\beta + V\theta a\phi\beta] = -\, Sa[\psi - \psi']\beta. \tag{8}$$

But it is well known that an expression of the form $[\psi - \psi']\beta$ is of the form $V\varepsilon\beta$, where ε is a vector; and, since the left side of (8) is linear in ρ, the same must be true of the right side, whence we may write

$$[\psi - \psi']\beta = V\pi\rho\beta, \tag{9}$$

where $\pi\rho$ (which is the same as ε) is a linear vector function of ρ. The equation (8) now becomes

$$\begin{aligned} S\rho\,[V\phi a\theta\beta + V\theta a\phi\beta] &= -\, Sa\, V\pi\rho\beta \\ &= +\, Sa\beta\pi\rho \\ &= +\, S\rho\pi' Va\beta\,; \end{aligned} \tag{10}$$

but, since ρ is any vector whatever, it follows that

$$V\phi a\theta\beta + V\theta a\phi\beta = \pi' Va\beta, \tag{11}$$

which shows that the left side is a linear vector function of $Va\beta$. It remains to study the form of π'.

3. *Form of the function* π.

The function π was defined by (9), hence depends on $\psi - \psi'$. Now ψ was given by (6); to find ψ' we use (4), thus,

$$\begin{aligned} S\sigma\psi\beta &= S\sigma\phi' V\rho\theta\beta, \text{ by (6)}, \\ &= S\phi\sigma V\rho\theta\beta, \text{ as in (4)}, \\ &= -S\theta\beta V\rho\phi\sigma, \text{ identically}, \\ &= -S\beta\theta' V\rho\phi\sigma, \text{ as in (4)}; \end{aligned} \tag{12}$$

hence by definition of a conjugate

$$\psi'\beta = -\theta' V\rho\phi\beta. \tag{13}$$

Returning to (9) and using the values of $\psi\beta$ and $\psi'\beta$, we have

$$\phi' V\rho\theta\beta + \theta' V\rho\phi\beta = V\pi\rho\beta, \tag{14}$$

which is to be solved for the linear vector function π. There are many ways of solving. We may choose first a method which, while slightly unsymmetrical, brings out the relation of the equation to Joly's invariants, and also has the advantage of compactness.

Since ρ may be any vector whatever, write $\rho = \theta\beta$, whence

$$\theta' V\phi\beta\theta\beta = V\beta\pi\theta\beta. \tag{15}$$

Multiply the left side by any vector λ, and transform thus,

$$\begin{aligned} S\lambda\theta' V\phi\beta\theta\beta &= S\theta\lambda\phi\beta\theta\beta, \text{ as in (4)}, \\ &= S\phi\beta\theta\beta\theta\lambda, \text{ identically}, \\ &= S\phi\beta V\theta\beta\theta\lambda. \end{aligned} \tag{16}$$

Now, by a well-known relation due to Hamilton,

$$V\theta\beta\theta\lambda = m\theta'^{-1} V\beta\lambda, \tag{17}$$

where m is the coefficient of the absolute term in the cubic

$$\theta^3 - m''\theta^2 + m'\theta - m = 0. \tag{18}$$

Therefore (16) becomes

$$\begin{aligned} S\lambda\theta' V\phi\beta\theta\beta &= mS\phi\beta\theta'^{-1} V\beta\lambda \\ &= mS\theta^{-1}\phi\beta V\beta\lambda, \text{ as in (4)}, \\ &= -mS\lambda\beta\theta^{-1}\phi\beta, \text{ identically}; \end{aligned} \tag{19}$$

but, since λ was any vector whatever, this is equivalent to

$$\theta' V\phi\beta\theta\beta = -mV\beta\theta^{-1}\phi\beta. \tag{20}$$

It is worth while to note in passing that (20) is a special case of the identity

$$\theta' V\mu\theta\beta = -mV\beta\theta^{-1}\mu, \tag{21}$$

where m is the third invariant of θ and μ and β are any vectors whatever; this relation may be proved as in (19), writing μ in place of $\phi\beta$.

If we now compare (20) with (15), we have, axiomatically,

$$V\beta\pi\theta\beta = -\, m\, V\beta\theta^{-1}\phi\beta, \tag{22}$$

whence by transposing and factoring

$$V\beta[m\theta^{-1}\phi\beta + \pi\theta\beta] = 0, \tag{23}$$

that is, the vector in brackets is parallel to β. Suppose

$$m\theta^{-1}\phi\beta + \pi\theta\beta = a\beta, \tag{24}$$

where a is a scalar. I shall now show that this scalar is one of Joly's invariants. The function π will then be fully determined.

4. *Determination of the scalar* a.

To determine the value of a, return to (14), and write $\theta\lambda$ in place of ρ, giving

$$\phi' V\theta\lambda\theta\beta + \theta' V\theta\lambda\phi\beta = -\, V\beta\pi\theta\lambda. \tag{25}$$

The first term on the left, by (17), is equal to $m\phi'\theta'^{-1}V\lambda\beta$; the second term, by (21), is $m\, V\lambda\theta^{-1}\phi\beta$; whence (25) becomes

$$m\phi'\theta'^{-1}V\lambda\beta + m\, V\lambda\theta^{-1}\phi\beta = -\, V\beta\pi\theta\lambda. \tag{26}$$

To see the meaning of the left side we may write

$$m\theta^{-1}\phi = \xi, \text{ a linear vector function;} \tag{27}$$

and therefore

$$m\phi'\theta'^{-1} = \xi', \text{ the conjugate function.} \tag{28}$$

Equation (26) will now read

$$\xi' V\lambda\beta + V\lambda\xi\beta = -\, V\beta\pi\theta\lambda; \tag{29}$$

but by Hamilton's relation referred to in the introduction,

$$\xi' V\lambda\beta + V\lambda\xi\beta = x'' V\lambda\beta - V\xi\lambda\beta, \tag{30}$$

where x'' is the first invariant of ξ, namely,

$$x'' = \frac{S\lambda\mu\xi\nu + S\mu\nu\xi\lambda + S\nu\lambda\xi\mu}{S\lambda\mu\nu}. \tag{31}$$

Comparing (29) and (30),

$$x'' V\lambda\beta - V\xi\lambda\beta = -\, V\beta\pi\theta\lambda, \tag{32}$$

which may be written

$$V\beta\,[x''\lambda - \xi\lambda - \pi\theta\lambda] = 0, \tag{33}$$

that is, the vector in brackets (which does not involve β) must be parallel to any vector β (which is impossible), or else must vanish identically, i.e.,

$$x''\lambda - \xi\lambda - \pi\theta\lambda = 0: \tag{34}$$

but the operand λ is any vector whatever, hence

$$x'' - \xi - \pi\theta = 0, \text{ identically.} \tag{35}$$

This agrees with (24), and shows $\sigma = x''$. Finally, form the invariant x'' by (31), putting for ξ its value from (27), and we have

$$\begin{aligned} x''S\lambda\mu\nu &= m\,(S\lambda\mu\theta^{-1}\phi\nu + S\mu\nu\theta^{-1}\phi\lambda + S\nu\lambda\theta^{-1}\phi\mu) \\ &= m\,(S\phi\nu\theta'^{-1}V\lambda\mu + \ldots) \\ &= S\phi\nu\theta\lambda\theta\mu + S\phi\lambda\theta\mu\theta\nu + S\phi\mu\theta\nu\theta\lambda \text{ by (17)}; \end{aligned} \tag{36}$$

but this makes x'' agree precisely with Joly's invariant l'_3 in Trans. R. I. A., vol. xxx. part XVIII. March 1896, p. 713. Inserting the values of x'' and ξ, (35) gives

$$\pi\theta = l'_3 - m\theta^{-1}\phi, \tag{37}$$

and by multiplying both sides into θ^{-1}

$$\pi = l'_3\theta^{-1} - m\theta^{-1}\phi\theta^{-1}; \tag{38}$$

whence by taking conjugates

$$\pi' = l'_3\theta'^{-1} - m\theta'^{-1}\phi'\theta'^{-1}, \tag{39}$$

so that (11) becomes

$$V\phi\alpha\theta\beta + V\theta\alpha\phi\beta = [l'_3\theta'^{-1} - m\theta'^{-1}\phi'\theta'^{-1}]V\alpha\beta, \tag{40}$$

and the problem proposed in Art. 1 is solved.

It is evident that the right side of this result is, in form, not symmetrical in the two functions ϕ and θ, while the left is so. Therefore, if we had interchanged ϕ and θ throughout the investigation, we should have found

$$V\phi\alpha\theta\beta + V\theta\alpha\phi\beta = [l_3\phi'^{-1} - p\phi'^{-1}\theta'\phi'^{-1}]V\alpha\beta, \tag{41}$$

where l_3 is Joly's invariant defined by

$$l_3S\lambda\mu\nu = \Sigma S\phi\lambda\phi\mu\theta\nu, \tag{42}$$

and p stands for the third invariant of ϕ. Since the two quantities in brackets in (40) and (41) must be equal we have the interesting identity connecting l_3 and l'_3

$$\pi = l'_3\theta^{-1} - m\theta^{-1}\phi\theta^{-1} = l_3\phi^{-1} - p\phi^{-1}\theta\phi^{-1}. \tag{43}$$

As a check on the work, we may note that (40) and (41) are generalisations of Hamilton's relation already mentioned in Art 1. Therefore if, as a special case, $\theta\rho = \rho$, identically, i.e., $\theta = 1$, both (40) and (41) must reduce to

$$V\phi\alpha\beta + V\alpha\phi\beta = [p'' - \phi']V\alpha\beta. \tag{44}$$

In the case of (40) this is all but evident; in (41) the reduction follows by the use of the cubic in ϕ. The proof is left to the reader.

5. *Proof by direct transformation.*

There is logical satisfaction in proving identities by the direct transformation of one side into the other. While it would not have been easy to foresee at the start how to do so, we may now, as a recapitulation of the main steps of the reasoning, prove the identity (40) in this manner.

$$\begin{aligned}
V\phi\alpha\theta\beta + V\theta\alpha\phi\beta &= \theta'^{-1}\theta'\,[V\phi\alpha\theta\beta + V\theta\alpha\phi\beta] \text{ since } \theta'^{-1}\theta' = 1,\\
&= \theta'^{-1}[\theta' V\phi\alpha\theta\beta + \theta' V\theta\alpha\phi\beta] \text{ by distributing } \theta',\\
&= \theta'^{-1}[-\,m V\beta\theta^{-1}\phi\alpha + m V\alpha\theta^{-1}\phi\beta] \text{ by 21},\\
&= \theta'^{-1}[V\xi\alpha\beta + V\alpha\xi\beta] \text{ by (27)},\\
&= \theta'^{-1}[x'' - \xi']V\alpha\beta \text{ by (30)},\\
&= \theta'^{-1}[l'_3 - \xi']V\alpha\beta \text{ by (36)},\\
&= [l'_3\theta'^{-1} - m\theta'^{-1}\phi'\theta'^{-1}]\,V\alpha\beta \text{ by (28)}.
\end{aligned}$$

6. *Symmetrical form of the function* π.

Since, as already indicated, the form of π in (38) is not symmetrical, it must be possible to obtain this function by a method that shall treat ϕ and θ alike. Doubtless we shall not expect so compact a result. Returning to our equation (14), we may develop both terms of the left side by Hamilton's relation, applying it to θ, thus

$$\begin{aligned}
V\pi\rho\beta &= \phi' V\rho\theta\beta + \theta' V\rho\phi\beta \text{ by (14)},\\
&= \phi'[(m'' - \theta')\,V\rho\beta - V\theta\rho\beta] + m'' V\rho\phi\beta - V\theta\rho\phi\beta - V\rho\theta\phi\beta\\
&= m''[\phi' V\rho\beta + V\rho\phi\beta] - [\phi' V\theta\rho\beta + V\theta\rho\phi\beta] - [\phi'\theta' V\rho\beta + V\rho\theta\phi\beta],
\end{aligned}$$

where the last line is a mere re-arrangement. Now Hamilton's relation may be applied to ϕ in the first two bracketed groups, and to $\phi'\theta'$ in the third group. The first invariant of the function $\phi'\theta'$ may be called t''. Then

$$V\pi\rho\beta = m''[p'' V\rho\beta - V\phi\rho\beta] - [p'' V\theta\rho\beta - V\phi\theta\rho\beta] - [t'' V\rho\beta - V\theta\phi\rho\beta],$$

where all the terms are vector products of some vector *into* β. Hence, since β is any vector whatever,

$$\pi = m''p'' - m''\phi - p''\theta + \phi\theta + \theta\phi - t'', \tag{45}$$

where ϕ and θ enter in the same manner. But, from Joly's paper already referred to, the scalar t'' is the same as M_1, the first invariant of $\theta\phi$, whence $m''p'' - t'' = l_2$, another of Joly's new invariants, defined by

$$l_2 S\lambda\mu\nu = \Sigma S\lambda(\theta\mu\phi\nu + \phi\mu\theta\nu). \tag{46}$$

We may therefore write (45) as

$$\pi = l_2 - m''\phi - p''\theta + \phi\theta + \theta\phi. \tag{47}$$

so that (11) now becomes

$$V\phi\alpha\theta\beta + V\theta\alpha\phi\beta = [l_2 - m''\phi' - p''\theta' + \theta'\phi' + \phi'\theta']V\alpha\beta. \qquad (48)$$

The function in brackets must, of course, be equal to the corresponding expressions in (40) and in (41), and must reduce to $p'' - \phi'$ when $\theta = 1$, as is easily seen

7. Proof by use of ∇.

In what precedes our work has consisted essentially in the solution of the equation (14) by two different methods, first by identities of the form (21) second by using Hamilton's relation for distributing ϕ and θ. A third method, offering certain advantages, is afforded by Hamilton's operator ∇. It is known that if ψ be any linear vector function, we have

$$(\psi - \psi')\beta = - V\beta V\nabla\psi\sigma, \qquad (49)$$

where ∇ acts on σ, but not on the constituents of ψ. Now by comparing (14) with (9) we have

$$\psi - \psi')\beta = \phi' V\rho\theta\beta + \theta' V\rho\phi\beta, \qquad (50)$$

whence by (49)

$$\phi' V\rho\theta\beta + \theta' V\rho\phi\beta = - V\beta V\nabla[\phi' V\rho\theta\sigma + \theta' V\rho\phi\sigma], \qquad (51)$$

where ∇ acts on σ but not on ρ. Thus at once

$$\pi\rho = - V\nabla[\phi' V\rho\theta\sigma + \theta' V\rho\phi\sigma], \qquad (52)$$

which gives π more directly than the former methods, but leaves the operation ∇ to be performed. It is not difficult to obtain (45) by the application of the properties of ∇.

8. Comparison with Cartesian methods.

It is highly instructive to compare identities obtained by the compact and elegant methods of Hamilton with their equivalent in the language of ordinary scalar algebra. Space forbids doing this in general, but as a single illustration let us see what (48) becomes when thus translated.

Let ϕ and θ be defined by the respective matrices

$$\phi = \begin{matrix} P_{11}, & P_{21}, & P_{31} \\ P_{12}, & P_{22}, & P_{32} \\ P_{13}, & P_{23}, & P_{33} \end{matrix} \qquad \theta = \begin{matrix} Q_{11}, & Q_{21}, & Q_{31}, \\ Q_{12}, & Q_{22}, & Q_{32}, \\ Q_{13}, & Q_{23}, & Q_{33}, \end{matrix}$$

and let the components of α and β be a_1, a_2, a_3 and b_1, b_2, b_3.

The vector $\phi\alpha$ will then have the components

$$P_{11}a_1 + P_{12}a_2 + P_{13}a_3; \quad P_{21}a_1 + P_{22}a_2 + P_{23}a_3; \quad P_{31}a_1 + P_{32}a_2 + P_{33}a_3;$$

and $\theta\beta$ will have the components

$$Q_{11}b_1 + Q_{12}b_2 + Q_{13}b_3; \quad Q_{21}b_1 + Q_{22}b_2 + Q_{23}b_3; \quad Q_{31}b_1 + Q_{32}b_2 + Q_{33}b_3.$$

Joly's invariant l_2, which is the simplest of his new invariants, becomes

$$P_{22}Q_{33} + Q_{22}P_{33} + P_{33}Q_{11} + Q_{33}P_{11} + P_{11}Q_{22} + Q_{11}P_{22} - P_{32}Q_{23} - Q_{32}P_{23} - P_{13}Q_{31} - Q_{13}P_{31} - P_{21}Q_{12} - Q_{21}P_{12}.$$

Our identity (48) is equivalent to three scalar identities, of which the first must suffice. It is

$$\begin{aligned}
&(P_{21}a_1 + P_{22}a_2 + P_{23}a_3)(Q_{31}b_1 + Q_{32}b_2 + Q_{33}b_3) - (P_{31}a_1 + P_{32}a_2 + P_{33}a_3)\\
&(Q_{21}b_1 + Q_{22}b_2 + Q_{23}b_3) + (Q_{21}a_1 + Q_{22}a_2 + Q_{23}a_3)(P_{31}b_1 + P_{32}b_2 + P_{33}b_3)\\
&- (Q_{31}a_1 + Q_{32}a_2 + Q_{33}a_3)(P_{21}b_1 + P_{22}b_2 + P_{23}b_3) = (P_{22}Q_{33} + Q_{22}P_{33} + P_{33}Q_{11}\\
&+ Q_{33}P_{11} + P_{11}Q_{22} + Q_{11}P_{22} - P_{32}Q_{23} - Q_{32}P_{23} - P_{13}Q_{31} - Q_{13}P_{31} - P_{21}Q_{12} - Q_{21}P_{12})\\
&(a_2b_3 - a_3b_2) - [Q_{11} + Q_{22} + Q_{33}][P_{11}(a_2b_3 - a_3b_2) + P_{21}(a_3b_1 - a_1b_3) + P_{31}(a_1b_2\\
&- a_2b_1)] - [P_{11} + P_{22} + P_{33}][Q_{11}(a_2b_3 - a_3b_2) + Q_{21}(a_3b_1 - a_1b_3) + Q_{31}(a_1b_2 - a_2b_1)]\\
&+ Q_{11}[P_{11}(a_2b_3 - a_3b_2) + P_{21}(a_3b_1 - a_1b_3) + P_{31}(a_1b_2 - a_2b_1)]\\
&+ Q_{21}[P_{12}(a_2b_3 - a_3b_2) + P_{22}(a_3b_1 - a_1b_3) + P_{32}(a_1b_2 - a_2b_1)]\\
&+ Q_{31}[P_{13}(a_2b_3 - a_3b_2) + P_{23}(a_3b_1 - a_1b_3) + P_{33}(a_1b_2 - a_2b_1)]\\
&+ P_{11}[Q_{11}(a_2b_3 - a_3b_2) + Q_{21}(a_3b_1 - a_1b_3) + Q_{31}(a_1b_2 - a_2b_1)]\\
&+ P_{21}[Q_{12}(a_2b_3 - a_3b_2) + Q_{22}(a_3b_1 - a_1b_3) + Q_{32}(a_1b_2 - a_2b_1)]\\
&+ P_{31}[Q_{13}(a_2b_3 - a_3b_2) + Q_{23}(a_3b_1 - a_1b_3) + Q_{33}(a_1b_2 - a_2b_3)]
\end{aligned}$$

Here the last three lines express in Cartesian form *one component* of the vector $\phi'\theta' V\alpha\beta$. It is clear that vector language and processes justify themselves not alone by their compactness, but by a two-fold lucidity: the vectorial expression for any quantity indicates both what it is and what may be done with it.

IV.

THE NATURE OF THE IONS PRODUCED IN AIR BY RADIO-ACTIVE BODIES.

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In an examination of the ionization produced by spraying water,[1] the author obtained evidence of the existence of a great variety of ions, some of them of mobility much greater than that ordinarily attributed to the small ion in air. On a more complete examination it was found[2] that several groups of such mobile ions existed, some of very high mobility. In addition, a number of other groups were separated out, the mobilities of which roughly corresponded to those observed for ions produced in air by the ordinary ionizing radiations. Four such groups were specially noted. These groups contained ions having for mobility in unit field (volt/cm.) the values 1·94, 1·70, 1·49, and 1·34 cm./sec. respectively. It was suggested: (1) that all these ions consist of clusters of water-molecules of different sizes, the very mobile ions corresponding to the very small groups (one, two, three molecules, etc.), and the others, such as the four mentioned above, consisting of larger groups of a regularly graduated size; (2) that the ordinary small ion in air and other gases is also a stable cluster of water-molecules, identical with one or other of the four forms mentioned above, the particular form prevailing at any time depending on the sign of the charge, and also on the degree of humidity.

As a first step towards the testing of these hypotheses, the author considered it desirable to make some attempt at an accurate redetermination of the mobility of the ordinary small ion in air of different degrees of humidity. The method employed for the measurement of mobility was practically the same as that devised for the measurement of the mobile spray-ions.

[1] Proc. Royal Irish Academy, vol. xxxiii (A), p. 9 (1916).
[2] Proc. Royal Society, A, vol. xciv, p. 112 (1918).

EXPERIMENTAL METHOD.

The apparatus (fig. 1) consists of a shallow rectangular box, measuring internally 125 cm. in length, 31·1 cm. in width, and 10 cm. in depth. Insulated metal plates are fixed flush with the top and bottom of the box. The lower plate is 45 cm. long, and is connected to a potentiometer by which it can be charged to any desired voltage. The upper plate, which is connected to an electrometer, is 25 cm. long and 15 cm. wide, and is surrounded by a guard-plate connected to earth. Thus the arrangement, as will be seen from the diagram, is practically that of a parallel-plate condenser, the distance between the plates being 10 cm. The ionization is produced at *X*, that is, directly below the edge of the upper insulated plate. A detailed drawing of the arrangement at *X* is given. It consists of a sort of trough of sheet lead, 1 cm. in width and 1·2 cm. in depth, which is sunk in the lower plate through

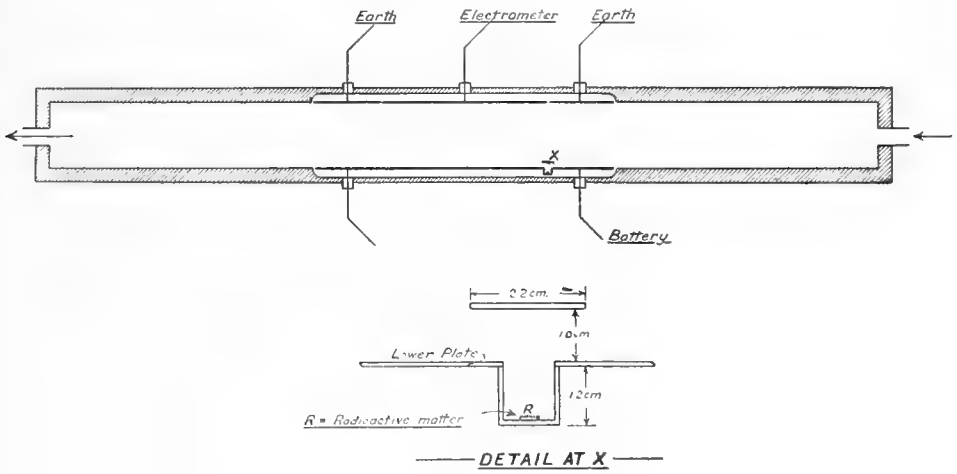

FIG. 1.

a slot 1 cm. in width. This trough extends across almost the whole width of the lower plate (approx. 28 cm.). A strip of lead 2·2 cm. in width is supported above it at a distance of 1 cm. from the surface of the plate. The radio-active matter is placed at the bottom of the trough. In these experiments the source of radiation was a number of thin glass tubes containing radium emanation. Thus a fairly intense local ionization is produced at the region marked *X*, the intensely ionized strip extending across the width of the lower plate, while the rest of the air-space is affected only by the more penetrating radiation which has passed through a thickness of approximately 1·3 mm. of lead. A uniform current of air passes through the apparatus in the direction indicated by the arrows. The lower plate is

charged to various potentials, and the corresponding currents to the upper plate are read off by means of the electrometer.

If all the ionization is produced at X, and if only one kind of ion is present, then, as the voltage is increased from zero, the electrometer will receive no charge until the field applied is sufficient to carry the ions across the vertical space between the plates, while the air-stream carries them through the horizontal distance of 25 cm. But, since all the ions are produced very nearly at the same place, they will have almost identical paths, and they will all arrive at the upper plate for a certain small increase in voltage. If the voltage is still further increased, there will be no increase in the current, as all the ions are already captured. If the current-voltage graph is plotted, it should show a zero value for current up to a certain point, then an abrupt upward bend at a certain voltage, and then a horizontal part. Knowing the dimensions of the apparatus and the quantity of air passing through it per second, we are enabled by an observation of this "critical voltage" to calculate the mobility of the ions.

But the form of curve described cannot be realized in practice. We have assumed that all the ionization is produced in a certain restricted region; but the more penetrating radiations will cause a weak general ionization throughout the whole air-space. The current due to this ionization will increase smoothly as the voltage increases, so that our experimental curve will really be due to the superposition of the step-like curve on this smooth curve. When these experiments were initiated, it was expected, therefore, that the curves obtained would show a gradual upward slope, then an abrupt step corresponding to the ordinary small ion, and then a resumption of the gradual rise. The actual curves obtained, however, were not of that simple nature.

Before discussing the graphs obtained, some further remarks are necessary as to the conditions of working. In the beginning, the ordinary air of the laboratory was drawn through the apparatus. It was found, however, that the electrical readings, while frequently quite good, were occasionally unsteady, and the evidence seemed to point to variations in the humidity of the air as the source of the unsteadiness. It was decided, therefore, to use air of some definite degree of humidity; and, as the difficulties involved in drying large volumes of air are very considerable, it was arranged to work with saturated air. The arrangement adopted then was to pass the air from one water-sealed gasometer through the apparatus into another identical gasometer. The gasometers were coupled together so as to move at the same rate. The results given in this paper, therefore, refer altogether to saturated air.

RESULTS.

The type of curves obtained in this work will be clear from an inspection of fig. 2 and fig. 3. Figure 2 is an example of the first part of the current-voltage curve, starting at zero voltage. Instead of a smooth slope upwards, we find a curve broken by four slight but unmistakable "nicks" or changes of direction. This indicates the presence, *in small quantities*, of four distinct classes of ions. The mobilities of these ions can be calculated from the formula $Vu = Qa/Lb$, where V is the "critical voltage," u the mobility, Q the volume of air per second, a the distance between the plates, L the length of the upper plate, and b the width of the apparatus. In all the experiments for which graphs are given, Vu had the value 25·0. The critical voltages on this curve are 2, 3·75, 6, and 8·35, and these values correspond to

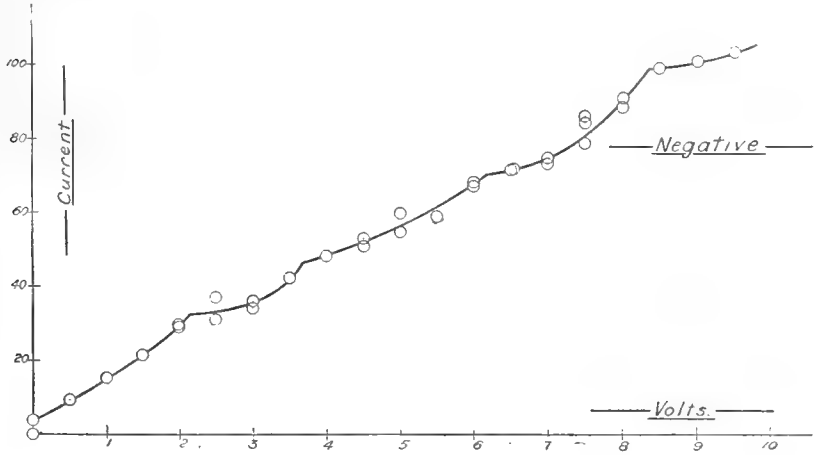

FIG. 2.

ions of mobilities 12·5, 6·66, 4·16, and 3·0 cm./sec. The graph given refers to negative ions. Similar graphs are obtained with positive ions, and, as far as investigation has gone, there seems to be no striking difference between the nature of the ionization of the different signs; certainly the ion of the highest mobility (12·5) is present in the positive ionization.

With regard to the curve given, it may be as well to state—and this applies equally to the other two curves—(1) that all the points plotted are direct experimental numbers, and are not the result of taking means; and (2) that every observation taken has been plotted.

In fig. 3 are given two examples, negative and positive, of the continuation of the current-voltage graph. Here, instead of the rather slightly marked "nicks" of the first part of the curve, we find in each case four distinct and well-marked steps. This indicates the presence, in considerable

quantities, of four groups of ions. Observing the critical voltages, we can, as before, calculate the mobilities. We find for the negative ions the values 2·0, 1·78, 1·54, and 1·36; and for the positive, the values 2·07, 1·78, 1·59, and 1·45. Some of these steps are much more distinctly marked than others. For example, in the case of the negative ions, the steps corresponding to the two faster ions (2·0 and 1·78) are much greater than those corresponding to the other two classes. In the case of the positive ions, however, the slowest ion (1·45) comes out much more distinctly than the others.

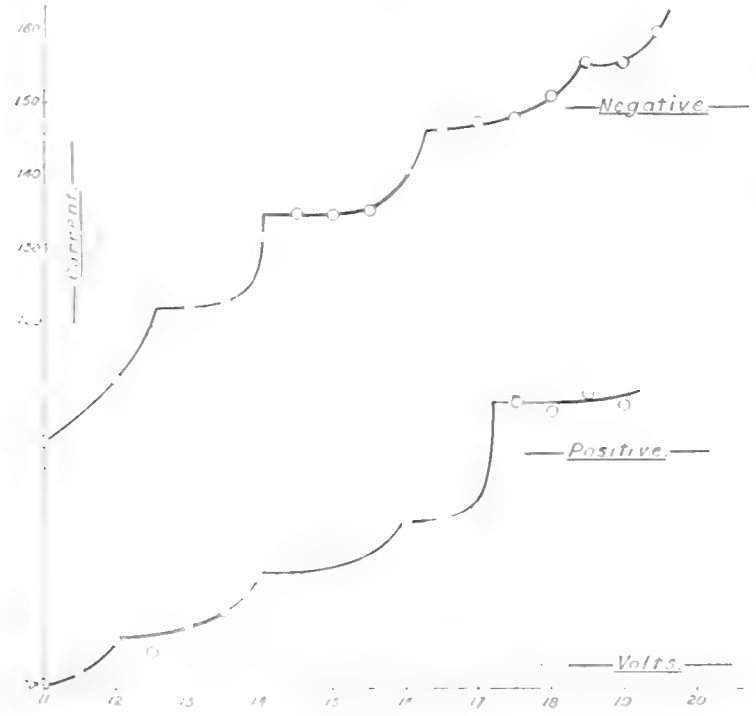

FIG. 3.

There can hardly be any doubt as to the interpretation of these curves. They show that when ionization is produced in moist air by radio-active substances the bulk of the ionization is carried by ions of four distinct classes, having mobilities 2·0, 1·78, 1·56, and 1·40 approx. That among negative ions the two faster groups tend to predominate, while among positive ions the slowest kind carries a large part of the ionization. That, in addition, ions of mobility up to 12·5 are present in distinct groups, but in small quantities.

CONFIRMATION.

The foregoing results were obtained by the author early in 1918. It was difficult, however, to believe that, if the ordinary small ion were in reality a mixture of what might be termed "isotopes," the fact should not have been detected by other observers. Efforts were therefore made to obtain confirmation of this result by an entirely different method. This has presented many difficulties, which have not yet, in fact, been completely surmounted. But some degree of confirmation has been obtained so far as concerns the four principal groups. It is hoped to give at a future date some account of these experiments; their value so far lies only in the fact that they support the much more distinct evidence given by the method described above.

GENERAL CONSIDERATIONS.

These efforts to obtain independent confirmation have delayed the investigation of certain points which at once present themselves as objects of inquiry. For example, an inspection of fig. 3 shows that there appears to be considerable difference between the mobility of the slowest positive ion and that of the corresponding negative ion. It is important to find out whether this is a real difference. Sufficient observations have not yet been made to decide the point. A table is given setting out the results of all good observations made so far on the four principal groups. The corresponding values found in the previous work on spray-ions are also given.

TABLE OF MOBILITY OF IONS.

Radio-active Source.				Spray Ions.	
Negative.			Positive.	Negative.	Positive.
2·0	1·92	—	2·07	1·94	1·93
1·78	1·64	1·74	1·78	1·70	1·72
1·54	1·47	1·50	1·59	1·49	1·56
1·36	1·33	1·30	1·45	1·34	1·37

The values given by the graph in fig. 2 for the more mobile ions, that is, 12·5, 6·66, 4·16, and 3·0, are in good agreement with the other observations which have so far been made over that range.

Another very important point is the question of humidity. All these observations have been made on moist air. An examination of the changes in the distribution of the ions produced by drying should be of great interest.

Again, it may be mentioned that the eight groups of ions dealt with in this paper do not account for all the ionization. If the graphs are pushed on, further indications are found of the existence of other groups having mobilities still lower. These have not yet been fully worked out.

If the evidence of these results be accepted, it would seem as if the theories which regard the small ion as an atom or molecule must be definitely abandoned. The small ion seems then to be a mixture, for the greater part, of groups of four different sizes. The unit out of which these groups are built up is probably the ion of mobility 12·5, the smallest of the more mobile ions found present. Now, almost any method of calculating the mobility of an ion on the elastic collision hypothesis will give for the mobility of a monomolecular ion something about this value. For example, in a previous paper[1] the author found that Sir J. J. Thomson's formula would give for a monomolecular ion of water the value 12·3, and for an ion of oxygen or nitrogen the value 12. We are therefore justified in assuming that this fastest ion is a single molecule, and that the other ions are groups of increasing numbers of molecules. The reasons given in the previous paper for believing that the molecular unit, of which the ions are built up, is the water molecule, rather than the oxygen or nitrogen molecule, still hold good; in fact, the whole argument of the previous paper is strengthened by the results now presented.

While the present paper has been in preparation, a paper by O. Blackwood on "The Existence of Homogeneous Groups of Large Ions"[2] has come under the writer's notice. Blackwood claims to have proved that the existence of a distinct group system of large ions, as found by the present writer and others,[3] cannot be verified. "In other words, he finds a *continuous* spectrum of mobilities, and not a *band* spectrum." He also holds that the evidence brought forward by the author in favour of the existence among spray-ions of mobilities higher than the normal may be interpreted in some other way, without assuming such abnormal mobilities.

Taking the latter point first, the author is of the opinion that the results given in the present paper on ions of high mobility are a remarkable confirmation of those given previously. The grounds on which Blackwood bases his criticism of the previous work (the validity of which criticism the

[1] Proc. Royal Society, A, vol. xciv, p. 112 (1918).

[2] Physical Review, Aug., 1920.

[3] J. J. Nolan, Proc. R.I.A., A, vol. xxxiii, p. 9 (1916). M'Clelland and P. J. Nolan, Proc. R.I.A., A, vol. xxxiii, p. 24 (1916); vol. xxxiv, p. 51 (1918); and vol. xxxv, p. 1. (1919).

present writer does not admit) are entirely absent in the case of the present experiments.

As to the existence of separate groups of large ions, work which is at the present time being carried out in the Physical Laboratory of University College, using the method employed by Blackwood (the Zeleny method), is in complete confirmation, as far as it has gone, of the previous work. Not only does the Zeleny method indicate clearly the co-existence of separate groups of large ions, but the mobilities deduced by it are in complete agreement so far with those obtained by the M'Clelland method. It is hoped to present this new evidence and to deal with the whole question of large ions in a future communication to the Academy.

With regard to the small ions, the present paper is obviously incomplete. The main results are presented pending a complete examination of the many points which call for attention.

The author wishes to thank Mr. F. E. Lewis, B.A., B.E., who prepared the diagrams for this paper. For help and inspiration in this and other work the author is deeply indebted to the late Professor M'Clelland.

PROCEEDINGS

OF THE

ROYAL IRISH ACADEMY

VOLUME XXXV

DUBLIN: HODGES, FIGGIS, & CO.
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1918–1920

PROCEEDINGS

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ROYAL IRISH ACADEMY

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SECTION B.—BIOLOGICAL, GEOLOGICAL, AND CHEMICAL SCIENCE.

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SECTION B.—BIOLOGICAL, GEOLOGICAL, AND CHEMICAL SCIENCE.

PROCEEDINGS

OF

THE ROYAL IRISH ACADEMY

PAPERS READ BEFORE THE ACADEMY

I.

ON SPECIES OF SEDUM COLLECTED IN CHINA BY L. H. BAILEY IN 1917.

By R. LLOYD PRAEGER.

Plates I–III.

Read January 27. Published March 28, 1919.

I have recently examined the plants belonging to the genus Sedum comprised in the collections made in China in 1917 by Mr. L. H. Bailey, of Ithaca, New York. The area traversed by him lay in the provinces of Kiangsi, Hupeh, and Honan. The portion of Kiangsi which was explored had previously been worked over by E. H. Wilson, but the northern border of Hupeh and part of Honan, where large collections were made, had not been explored previously by a botanist. The Sedums enumerated below were obtained in latitude 29° to 32° N. and at no great elevation—from near sea-level to some 3500 feet. The collection is of a more lowland character than most of those which have yielded the many new species of Sedum described in recent years from China, which have come largely from the high ranges of Yunnan and the great gorges of the Mekong and Yangtse, over by the Tibet border.

The collection, though small, is of considerable interest. The eleven numbers include eight species, three of which are new. Of the species previously described, *S. lineare* Thunb., long known from Japan, is hitherto unrecorded from China. Of the new species, one plant is related to a small and well-marked group which, as hitherto known, was confined to the Caucasus and Asia Minor, while another is a remarkable species with leaves which are unique in the large genus to which it belongs, and with other unusual characters showing interesting affinities.

Chinese Sedums are now so many in number, the type specimens are so widely scattered in herbaria and the descriptions in botanical literature, that

illustrations of the species are highly desirable, especially as in this genus the species are often difficult of diagnosis, and dried material mostly poor. In addition to the three new species, I have given therefore figures of *S. Alfredi* and *S. drymarioides*. The well-known *S. Aizoon* has already been figured several times; figures of *S. linear* and of *S. viscosum* (as well as of *S. Aizoon*) will be given in an account of the Sedums known in cultivation, which I have prepared for the Royal Horticultural Society of London.

Section AIZOON.

Sedum Aizoon Linn.

Hills Kiushan and vicinity province of Honan. Lat. about 33°. June 23, 1917. (L. H. Bailey, Sedum no. 4.)

var. **scabrum** Maximowicz.

Chikungshan, border of the provinces of Hupeh and Honan, on the divide between the Yang-tse and Hwai-ho rivers. Lat. about 32°. Alt. 1500–2500 feet. June 13, 1917. (L. H. Bailey, Sedum no. 7.)

S. Aizoon is widely distributed over north-central and north-eastern Asia. The variety has also a wide range, and is stated by Maximowicz to be commoner about Pekin than the type.

Section SEDA GENUINA.

Sedum limuloides sp. nov.

Herba perennis (vel fortasse biennis?), dense rosulata, glabra. *Radices* anguste fusiformes, radiculas multas fibratas emittentes. *Caudex* brevissimus, dense foliosus, ramum floriferum erectum terminalem et ramos floriferos axillares extravaginales ads cendentes emittens. Rami florigeri simplices, foliosi, 4–6 cm. longi. *Folia* rosulae exteriora atque media glabra, anguste oblonga, confertissima, viridia, marcescentia, 1–1·5 cm. longa, 3–5 mm. lata, integra nisi ad apicem setam brevem spinosomarginatum hyalino-corneum (ut est vagina); spinae 7–13, spina media recta 1·5–2 mm. longa, caeterae dimidio minores (floralia deficiunt). Folia caulina inferiora anguste-oblanceolata, integra, acuminata, 1–2 cm. longa, 2–3 mm. lata, rubropunctata, spina unica subulata albescente 2 mm. longa armata. Folia ramorum floriferorum alterna, internodiis longiora, 4–7 mm. longa, inferiora apice 3–5-spinosa, superiora 1-spinosa. *Inflorescentia* racemosa, terminalis, 2–2·5 cm. longa, 6–12-flora. *Flores* 4·5 mm. longi, albi? vel rubescentes?, pedicellis 5 mm. longis. *Sepala* ovato-deltoidea, fere ad imum libera, acuta, 1 mm. longa. *Petala* lanceolata, acuminata, 4·5 mm. longa. *Stamina* 4 mm. longa, antheris ovato-conicis. *Squamae*

minutae, cuneato-truncatae, ·6 mm. longae. *Carpella* 4 mm. longa, erecta, rubropunctata, in stylos erectos attenuata.

Kioshan and vicinity, on hills, province of Honan. Lat. about 33°. June 23, 1917. (L. H. Bailey, Sedum no. 5.)

This is a very interesting plant, both on account of its peculiar foliage and its relationships. Its fantastic leaves are without parallel in the genus to which it belongs. The white horny spined sheaths which envelop the leaf-tips are very persistent, and clinging to the old rotting leaves, are strikingly suggestive of small white crustacea or arachnids crawling on the plant.

In its dense rosette of well-developed leaves producing lateral leafy flowering stems the plant is very exceptional among Sedums. But a similar arrangement is found in *S. Balfouri* R. Hamet from the Yangtse-Mekong divide, in *S. Durisi* R. Hamet from Zumutch Tágh in Central Asia, and also in *S. orichalcum* W. W. Sm. from mountains north-east of the Yangtse bend.

I have endeavoured elsewhere[1] to show that a continuous series of forms connects the typical members of the *Rhodiola* section of Sedum (such as *roseum* Scop., *crassipes* Wall., *himalense* D. Don), which possess an elongated caudex crowned with scales from the axils of which leafy flower-shoots arise, with such forms as *Balfouri*, in which a dense rosette of linear caudex-leaves produces tall axillary flower-shoots. The scales which crown the caudex of the one are analogous to the leaves which crown the caudex of the other, all intermediate stages being observable among the different species, and seedlings of the scale-bearing species producing leaves (which early degenerate into scales) exactly analogous to the leaves of the leaf-bearing species. One of the strongest links in the continuity of this series lies in the mode of attachment of the leaves. In most Sedums, although the base of the leaf or leaf-stalk may be (and often is) broad, the actual attachment is very contracted, and little more than a point. In the Rhodiolas, however, while the attachment of the leaves of the flower-shoots is as just described, that of the caudex-leaves is very broad, the leaves clasping the caudex and being attached by their whole breadth. Precisely the same arrangement occurs in *S. limuloides* (Pl. I, *b*, *c*), and its leaf also agrees generally (except for its peculiar apex) with that of *S. Balfouri* (Plate I, *h*).

On the other hand, *S. limuloides* produces, in addition to its axillary flower-stems, a terminal flower-stem, following the maturation of which the whole shoot, including the basal leaf-rosette, appears to die, the life of the plant being

[1] On the affinities of *Sedum Praegerianum* W. W. Sm., with a tentative classification of the section *Rhodiola*. Proc. Bot. Soc. Edinb. 27, pt. 2, 1917.

apparently continued by offsets on short horizontal shoots arising from near the base of the rosette. These features are not found in *Rhodiola*, and would place the plant in the *Sedo Genuina*, its rosettes, slender offsets, and diverse spiny leaves strikingly recalling *S. pyramidale* Praeger from Kansu, which, however, has a dense pyramidal compound inflorescence. The evidence for this perennial character due to lateral branching is not complete, only one such shoot having been seen, which was not actually attached, though apparently it had been so. If the growth-form of *S. limuloides* is as suggested, the plant appears to be unique among the *Sedo Genuina* in the broad attachment of its leaves.

As regards *S. orichalcum*, though in its leaf-rosettes and lateral flower-stems it resembles *S. limuloides*, yet it differs materially in its leaves narrowed at the base and joined to the caudex in the usual Sedum manner by a very constricted attachment[1]: also in the apparently indefinite duration of its shoots, the flower-stems being lateral only and the leaf shoot continuing perennially as in *Rhodiola*.

Horny leaf-tips somewhat resembling those of *S. limuloides* are found in *Cotyledon spinosa* L. in which, however, only a single terminal spine is present. This plant comes close to Sedum, but differs from the present species in its stout tall single terminal flower-stems bearing elongated very dense racemes.

Another Chinese Sedum, of which I have not seen the type, which appears to resemble in some respects the group of species discussed above, is *S. Schinzianum* R. Hamet. It has leaves arranged in rosettes and racemose inflorescence, as in *S. limuloides*. But whether it possesses the characters which point to affinity with the *Rhodiola* group, or is rather allied to the annual rosette-bearing *Sempervivoides* group (which has characteristically a paniculate inflorescence) cannot be determined definitely from the description.

It is clear that in *S. limuloides* and *S. orichalcum* and possibly in some of the other species mentioned, we have plants which possess some of the characters which distinguish *Rhodiola*, and others belonging to the *Sedo Genuina*: further study will be needed to show where their affinities lie.

Series Involucrata.

Sedum Baileyi sp. nov.

Herba perennis, pusilla, glabra. *Caules steriles* filiformes, repentes, epigei vel hypogei, 2–4 cm. longi, internodiis 6–8 mm. longis, nodis folia opposita

[1] I have to thank Professor I. Bayley Balfour for giving me an opportunity of examining the type specimens of *S. Balfouri* and *S. orichalcum*.

subsessilia plana integra orbicularia 2 mm. diametro et radices et saepe ramos binos emittentibus. *Caules floriferi* erecti, simplices vel raro ramos binos axillares medio emittentes, parce foliosi. *Folia* caulium floriferorum 2 vel 4, opposita, plana, integra, internodia aequantia, obovato-cuneata vel rhomboideo-cuneata, apice rotundata, basi attenuata sed vix petiolata, 10–15 mm. longa, 4–6 mm. lata, rubro-punctata, calcarata; calcar obtusum, deltoideum. *Inflorescentia* terminalis, cymosa, pauciflora, simplex vel dichotoma, ex floribus 1–5 composita. *Flores* sessiles, 6–7 mm. longi, rubri, bracteis foliis consimilibus et aequilongis praediti. *Sepala* deltoidea, paene libera, 2 mm. longa. *Petala* lineari-lanceolata, acuminata, erecto-patula, 6–7 mm. longa, libera, basi non angustata. *Stamina* 4 mm. longa, antheris oblongis rubris. *Squamae* minutae, quadratae, paullo longiores quam latiores, ·7 mm. longae. *Carpella* lanceolata, attenuata, suberecta, 4·5 mm. longa, stylis longis gracilibus coronata.

Kuling, province of Kiangsi. Lat. about 29½°. Alt. 2500–3500 feet. July 9, 1917. (L. H. Bailey, Sedum no. 2.)

A very interesting little plant, closely related to the species constituting the *Involucrata* group of Maximowicz, of which *S. spurium* M. Bieb. and *S. stoloniferum* S. T. Gmel. are the best-known species, and which, as hitherto known, was confined to the Caucasus and Asia Minor. It has the broad opposite leaves and red flowers which characterize the group. Its elongate semi-erect petals come close to those of *S. spurium*; and its most unusual feature, the epigeous or slightly subterranean stolon-like barren shoots, is in Sedum found very seldom—in two species of the *Involucrata* group and in one of the *Telephium* section. As regards the former, the shoots of *S. Listoniae* Visiani are above, and those of *S. proponticum* Aznavour below ground. In both these species the barren shoots are short and congested, while in the present plant they have relatively long internodes. Both agree with *S. Baileyi* in having erect annual flowering shoots. In *S. cauticolum* Praeger (the *Telephium* referred to), a Japanese plant, the shoots are subterranean and very slender, as in *S. Baileyi*. A few of the *Rhodiola* section, notably *S. crassipes*, can on occasion produce similar underground stoloniferous shoots, but this is abnormal.

Series Japonica.

Sedum Alfredi Hance.

Shanghai, on the grounds of St. John's University, May 2, 1917. (L. H. Bailey, Sedum no. 3.)

Agrees fairly well with Hance's description as amplified by Maximowicz (Bull. Acad. Imp. de St. Pétersbourg, **29**, 152.) The flowers in the present

specimens are, however, distinctly stalked (not sessile); the petals would be better described as oblong-oblanceolate than as ligulate acuminate (Hance); and the scales as broadly spathulate than as truncate-rotund (Hance).

A graceful little plant, which in its fibrous roots, stems procumbent and rooting at base, flat glabrous leaves, and cymose yellow flowers is typical of the series *Japonica* as established by Maximowicz. It appears to be a low-land species, spread along the coastal regions of eastern Asia from Canton to Yokohama, and is doubtfully recorded from Yunnan (Notes R. Bot. Soc. Edinb., **8** 183, 259).

Sedum lineare Thunberg.

Chikungshan, border of the provinces of Hupeh and Honan, on the divide between the Yang-tse and Hwai-ho rivers. Lat. about 32°. Alt. 1500–2500 feet. June 12 and 16, 1917. Covering banks with long decumbent shoots (L. H. Bailey, Sedum nos. 6 and 8.)

One of the earliest known of Japanese Sedums, and long in cultivation in Europe, mostly in a variegated form under the name *S. carneum variegatum* but not hitherto reported from China. In the Kew Herbarium among unnamed material I find two Chinese specimens of this species labelled repectively Kewkiang, Lushan Mts., 22 May, 1892 (Bullock); and Rocks, Yangtze bend, 5·03 E. H. Wilson, no. 3631). Its occurrence in these stations tends to confirm the doubtful record from the Luchu Archipelago.

Sedum quaternatum sp. nov.

Herba perennis, humilis, glaber. *Caules* crassiusculi, ad 2 mm. diametro, radicantes, ramos steriles procumbentes vel adscendentes et ramos floriferos adscendentes vel erectos emittentes. Rami simplices vel ramosi, foliosi, tetrapteri; floriferi 4–6 cm. alti, steriles breviores. *Folia* ramorum sterilium et floriferorum 4-verticillata, internodiis longiora, anguste lanceolata, acuta, sessilia, breviter obtuseque calcarata, 8–10 mm. longa, 1·5–2 mm. lata, carnosa, pulchre viridia, ea ramorum sterilium apicibus ramorum conferta. *Inflorescentia* terminalis, cymosa dichotoma, 2–3 cm. diametro, ramis simplicibus vel dichotomis divaricatis. *Flores* sessiles, pauci, 9 mm. diametro, aurei, bracteis linearibus viridibus praediti. *Sepala* oblongo-lanceolata, obtusa, inaequalia, libera, 3–5 mm. longa, viridia. *Petala* lanceolata, acuminata vel acuta, 5 mm. longa. *Stamina* 4 mm. longa, filamentis aureis, antheris rubescentibus. *Squamae* minutae, ·4 mm. longae, quadratae. *Carpella* sub anthesi erecta, gracilia, 5 mm. longa, in stylos longos graciles attenuata. *Fructus* stellatus.

Chikungshan, border of the provinces of Hupeh and Honan, on the divide

between the Yang-tse and Hwai-ho rivers. Lat. about 32°. Alt. 1500–2500 ft. June 13, 1917. (L. H. Bailey, Sedum no. 9.)

These narrow-leaved Sedums of the *Japonica* series, which often recall the moss Polytrichum in appearance, now constitute quite a large group; they range from the Himalayas to China, and are closely related and difficult to diagnose. R. Hamet, to whose careful work our knowledge of most of them is due, at first[1] placed importance on the erectness or divergence of the fruiting carpels, thus separating from the rest *S. multicaule* Wallich and *S. Heckeli* R. Hamet (both with divergent carpels), which he placed with a series of mostly broad-leaved stellate-fruited species which belong to eastern China, Japan, and the Philippines. More recently,[2] however, he unites these two species with their Sino-Himalayan narrow-leaved congeners.

From all Asiatic Sedums the present species can be distinguished by its combination of lanceolate acute verticillate leaves and divergent fruit. The leaf-character separates it from *S. drymarioides* Hance, *S. filipes* Hemsley, and *S. Silvestrii* Pampanini, which are white-flowered, broad-leaved species of the series *Cepaea*; also from *S. Bergeri* R. Hamet (with *linear-spathulate* verticillate leaves), and *S. Yvesi* R. Hamet (with *obovate-linear* blunt verticillate leaves), to both of which *S. quaternatum* appears closely related; while its divergent carpels distinguish it from all its allies except *S. multicaule* and *S. Heckeli*, which have alternate leaves. It comes nearest to *S. Yvesi*, in which, however, in addition to the difference of leaf, the flowers are stalked (not sessile), the sepals linear (not oblong-lanceolate), the petals ovate (not lanceolate) and the scales obovate-cuneiform (not quadrate).

Section SEMPERVIVOIDES.

Series CEPAEA.

Sedum drymarioides Hance.

Kuling, province of Kiangsi. Lat. about 29½°. Alt. 2500–3500 feet. July 20, 1917. (L. H. Bailey, Sedum no. 1.)

This appears to be a very variable species. The present specimens belong to the southern race as described by Maximowicz (Bull. Acad. Imp. de St. Pétersbourg **29** 155), with large opposite lower leaves and truncate scales. The sepals in Bailey's plants appear to be unusually short (⅓, not ½ or ⅔ the petals) and are deltoid rather than ovate, the petals lanceolate rather than ovate, and the pedicels 3–4 times (not twice) the flowers. Of the articulation

[1] Bull. Geogr. Bot. **23** (1913), 68-70.
[2] Journal of Botany, 1916, Supplement.

on the pedicels, described by Hance, but omitted by Maximowicz, there is no trace. The leaves, as seen by transmitted light, are densely dotted with red.

Widely spread in Eastern China, from south to north.

Sedum viscosum Praeger.

Chikungshan, border of the provinces of Hupeh and Honan, on the divide between the Yang-tse and Hwai-ho rivers. Lat. about 32°. Alt. 1500–2500 ft. June 13 and 30, 1917. (L. H. Bailey, Sedum nos. 10 and 11.)

Quite recently described from Yunnan specimens (Journal of Botany, 1919, p. 37). The plant comes near the northern race of *S. drymarioides* as described by Maximowicz (*l.c.*), but differs from that species in its inflorescence simple (not bifid), corolla flat (not campanulate) and nearly twice as large, and other characters. It is also nearly related to *S. stellariaefolium* Franchet, but the flowers are nearly twice as large as described for that plant, and there are other differences.

DESCRIPTION OF PLATES.

Plate I.

Sedum limuloides sp. nov.

a, plant, × 2; *b*, leaf, × 5; *c*, ditto by transmitted light, showing venation and dotting, × 5; *d*, young fruit; *e*, petal; *f*, scale; *g*, stamen; all × 5; *h*, leaf of *S. Balfouri*, × 1.

Plate II.

Sedum quaternatum sp. nov. (upper figure).

a, plant, × 2; *b*, leaf, × 5; *c*, flower, × 3; *d*, sepal; *e*, petal; *f*, stamen; *g*, scale; *h*, carpel; all × 5.

*Sedum Bailey*i sp. nov. (lower figure).

a, plant, × 2; *b*, flower, × 3; *c*, sepal; *d*, petal; *e*, stamen; *f*, carpel; *g*, scale; all × 5.

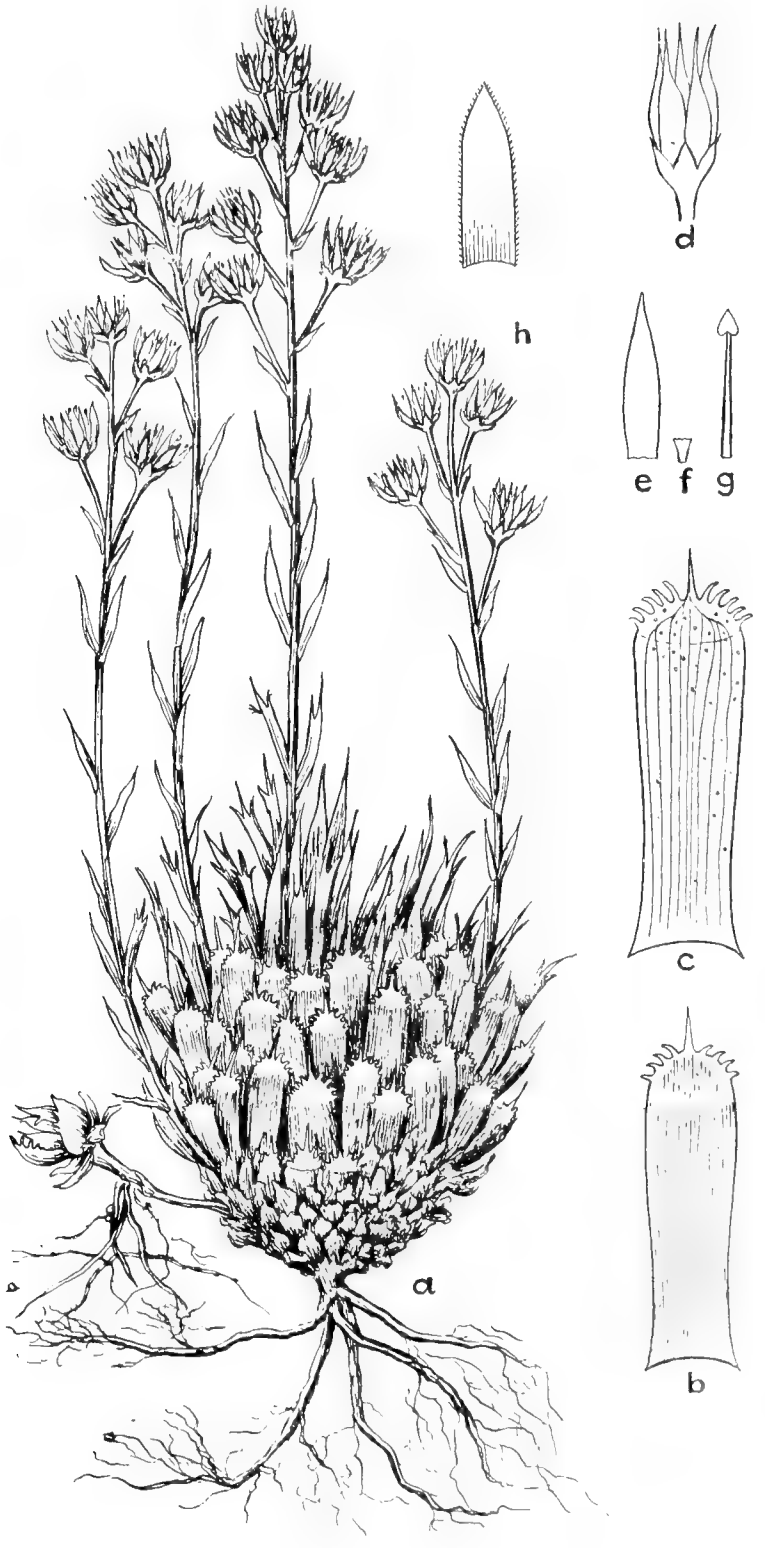
Plate III.

Sedum drymarioides Hance (left-hand figure).

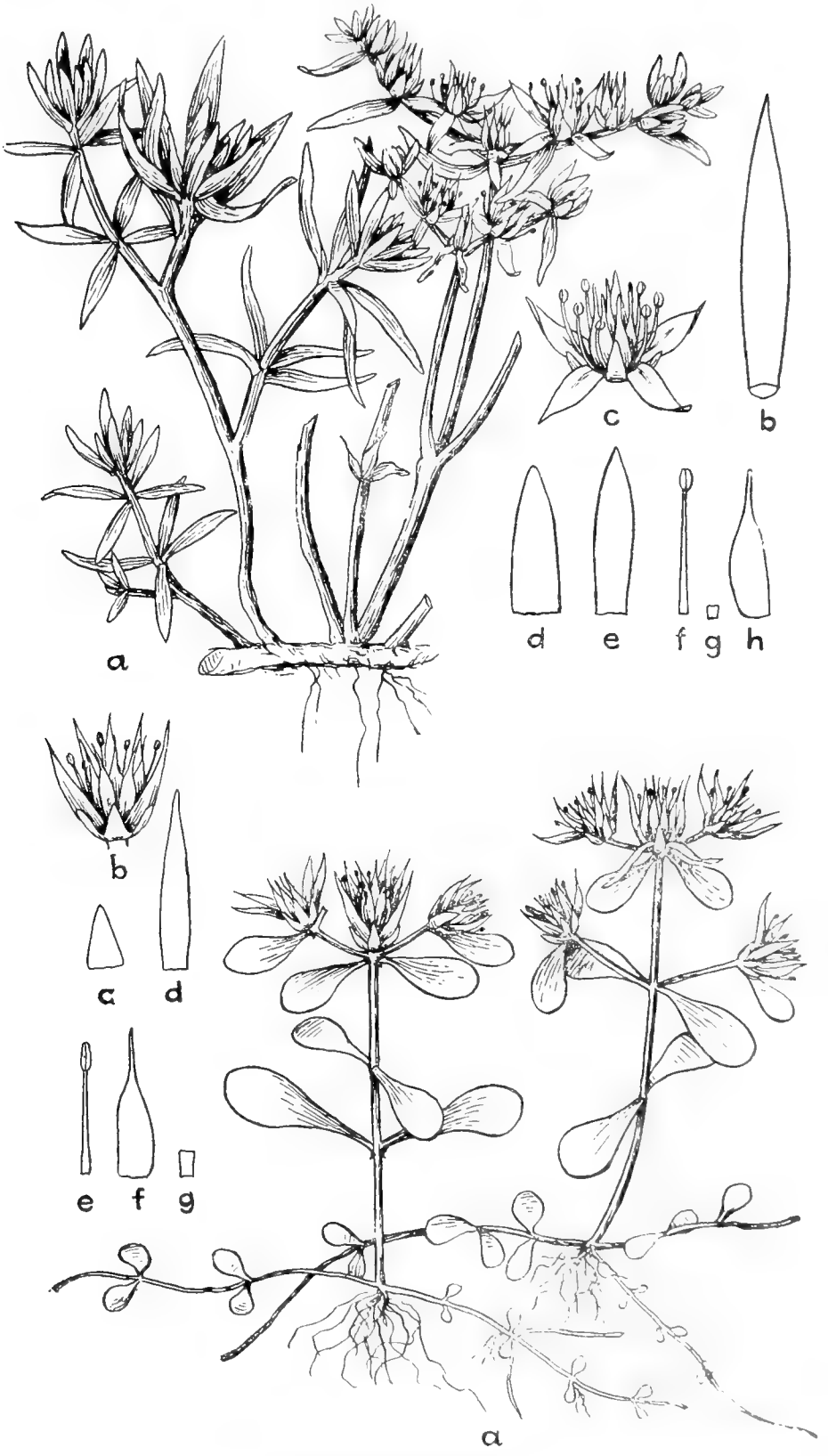
a, plant, × 1; *b*, flower, × 3; *c*, sepal; *d*, petal; *e*, stamen; *f*, carpel; *g*, scale all × 5.

Sedum Alfredi Hance (right-hand figure).

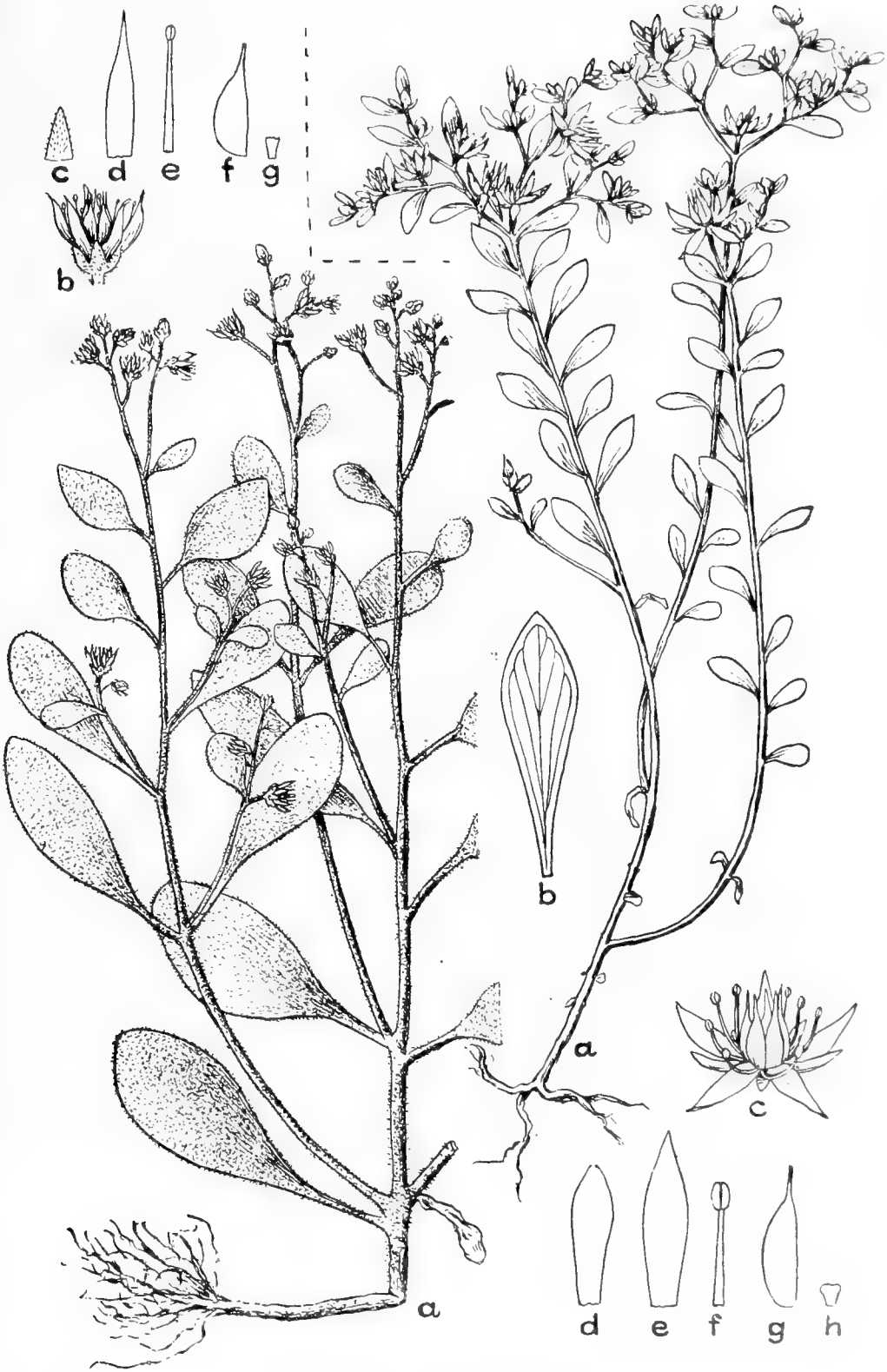
a, plant, × 1; *b*, leaf, showing venation, × 3; *c*, flower, × 3; *d*, sepal; *e*, petal, *f*, stamen; *g*, carpel; *h*, scale; all × 5.



Praeger.—Chinese Sedums.



Praeger.—Chinese Sedums.



Praeger.—Chinese Sedums.

II.

THE HISTORY OF THE LONDON PLANE, *PLATANUS ACERIFOLIA*, WITH NOTES ON THE GENUS PLATANUS.

By AUGUSTINE HENRY, M.A., F.L.S.;

AND

MARGARET G. FLOOD, B.A.

Plates IV–IX.

Read February 10. Published April 14, 1919.

In an article on the "Artificial Production of Vigorous Trees,"[1] published in 1914, I drew attention to certain well-known trees, like the Lucombe Oak, Huntingdon Elm, Cricket-bat Willow, and Black Italian Poplar, which owe their vigour and botanical characters to the fact that they are of hybrid origin. Such hybrids arose as chance seedlings, due to cross-pollination of two trees of different species growing together. The introduction into Europe during the seventeenth century of North American trees which grew alongside similar but distinct European species in parks and gardens, was the occasion of considerable hybridization. Trees like the Black Italian Poplar and the London Plane, which have never been seen anywhere in the wild state, are intermediate in botanical characters between an American and a European species in each case, and are undoubtedly first crosses.

The London Plane, *Platanus acerifolia*, W., has all the peculiarities which are met with in a first cross. It is intermediate in fruit and leaves between the supposed parents—the Oriental Plane, which is indigenous in Greece and Asia Minor, and the Occidental Plane, which grows in a wild state in the forests of the eastern half of the United States. Its vigour is exceptionally great, as is usual in hybrids of the first generation; and its seeds when sown produce a mixed and varied crop of seedlings, in which are variously combined the characters of the two parents. Several supposed forms of the London Plane which are not uncommonly cultivated, appear to be chance seedlings of this tree, being hybrids of the second generation.

The vigour of the London Plane is remarkable. It is extensively used for planting in the streets of towns in Europe and North America, as it has

[1] Journ. Dept. Agric., Ireland, xv, pp. 34–52. (Oct., 1914.)

been found to surpass all other trees in its powers of resistance to drought, smoke, and other unfavourable conditions of soil and atmosphere. In the cities of New England, Ohio, Pennsylvania, etc., the London Plane is much more successful as a street tree than the Western Plane, notwithstanding the fact that the latter is the finest and largest native broad-leaved tree in the forests of these states. The selection as a street tree of the London Plane in preference to the native species in the regions where the latter flourishes, depends on the vigour inherent in the former tree on account of its hybrid origin.

The London Plane, being undoubtedly a hybrid, must have originated as a chance seedling in some botanic garden, where an Occidental Plane and an Oriental Plane happened to be growing close together. Such a seedling, by the vigour of its growth and the novelty of its foliage, would attract attention and be propagated by an observant gardener. The ease with which the London Plane can be raised from cuttings would much facilitate its propagation. I shall try to show that it possibly originated in the Oxford Botanic Garden about 1670, though this surmise cannot be definitely proved.

The Occidental Plane was introduced from America into England by Tradescant in 1636, about a century later than the earliest record of the Oriental Plane in this country. By 1670, there would have been trees of the American species old enough to bear pollen. The connexion with Oxford is as follows:—Jacob Bobart, junior, who succeeded his father as curator of the Botanic Garden at Oxford in 1680, left in MS. an "Enumeration of Trees and Shrubs,"[1] in which for the first time there is mention in any record of the London Plane. This MS. is unfortunately without date; but a similar MS. has 1666 on the fly-leaf. In the "Enumeration" the planes in cultivation are distinguished as follows:—

No. 475. Platanus orientalis, pilulis amplioribus.

No. 476. P. inter orientalem et occidentalem media.

No. 477. P. occidentalis aut virginiensis.

Corresponding to the diagnosis, No. 476, of the London Plane, as intermediate between the Oriental and the Occidental species, there is a dried specimen, undoubtedly *P. acerifolia*, in the Sherard Herbarium at Oxford, labelled "*Platanus media*."

The first published description of the London Plane was by Plukenet in 1700, in his "Mantissa," p. 153, which reads as follows:—"Platanus orientalis et occidentalis mediam faciem obtinens, Americanus, globulis grandioribus, foliis splendentibus atris." The type specimen of this description is in the

[1] This is printed by Vines and Druce, "Account of Morrisonian Herbarium," p. 261 (1914).

British Museum, Herb. Sloane, No. 101, folio 112. In addition there are two sheets of specimens, collected by Petiver about the same period, one of which, Herb. Sloane, No. 149, folio 237—two fine leaves of *Platanus acerifolia*—is labelled "*Platanus media*, n.d. Bobart, Ox."

It is possible that the original tree, from which this specimen was taken by Bobart, was then living in the Oxford Botanic Garden. As Plukenet describes this plane as bearing large fruit-balls in 1700, it may have been then thirty years old, which would give the date of origin of *Platanus acerifolia* as 1670.

This history synchronizes well with the date of the magnificent London Plane,[1] probably the oldest in Europe, which is living in the Palace Garden at Ely and now measures 110 feet high, the trunk being 23 feet in girth at 5 feet above the ground. It was planted by Gunning, when he was bishop there between 1674 and 1684. Bishop Gunning spent some time at Oxford before his appointment to the Ely diocese.

The splendid London Plane at the Ranelagh Club, Barnes, is precisely of the same size as the Ely tree, and is probably of the same age, both these trees being apparently cuttings of the original tree, which is postulated in this account to have been in the Oxford Botanic Garden. There is no record of the age of the Ranelagh Club tree. There are two other immense London Planes, probably coeval with the Ely tree, namely, one at Peamore, near Exeter, and the other at Woolbeding, Sussex; but no particulars of their history can be obtained.

On the Continent there are no examples of the London Plane approaching in size or age the fine trees at Ely and Barnes; and no mention is made of it by any Continental writer before 1703, when it was briefly described by Tournefort. Since the latter date, the cultivation of the London Plane has spread over the Continent, and it is now common in towns in France and Germany. In the United States, as stated above, it is widely cultivated as a street tree, but almost invariably under the erroneous name of "*P. orientalis*." The true *P. orientalis* is very rare in America, and is never used for planting in streets.

Various seedlings of the London Plane have been selected from time to time; and one of them, *P. pyramidalis*, which originated on the Continent about 1850, is now as commonly planted in the streets of our towns as the true London Plane. Another seedling, *P. hispanica*, a beautiful tree resembling the Occidental Plane in foliage, was known in England before 1731, and must have come from seed of one of the earliest London Planes. The

[1] Owing to an unfortunate mistake, the Ely tree is erroneously identified with *P. orientalis* in Elwes and Henry, "Trees of Great Britain," iii, 621, plate 174 (1908).

history of the peculiar trees, here regarded as hybrid seedlings of the second generation on account of their botanical characters, is obscure. They may ultimately prove to be identical with young seedlings of *P. acerifolia*, which are now growing at Kew and Glasnevin, when these in after years acquire adult foliage and bear fruit. This would be a positive proof of their hybrid origin.

In the present paper the results of an investigation into the botanical differences of the two parent planes and their various hybrids will be detailed. Before doing so, it is desirable to give some account of the genus Platanus, of which six living species are known, concentrating our attention on the foliage and fruit, the characters mainly studied by us.

Characters of the genus Platanus.—In all planes, the leaves are alternate, simple, stalked, palmately 3-5-7 lobed: margin entire or with minute or coarsely sinuate teeth; venation pseudo-palmate with three or five main nerves; base of the blade cordate, truncate, or cuneate. Buds concealed in the funnel-shaped base of the leaf-stalk. Stipules two, united into a tube embracing the twig above the insertion of the leaf, thin and scarious on flowering shoots, broad and leafy on vigorous barren branchlets. Flowers monoecious, in uni-sexual heads. Fruiting heads globose, each ball made up of numerous closely packed achenes; style persistent or breaking off from the top of the achene.

The differences in the species are not great. Each occupies a distinct region of the earth's surface; and the modifications exhibited by the leaves and fruits are probably adaptations, fitting each species to the climate and soil of the territory in which it grows.

The leaves show specific differences as regards the woolly mat of hairs on their surface, and in respect of the depth of their lobing. In all the species, the leaves, on opening, are densely covered with wool; but as the season advances, the wool either disappears completely or persists to a lesser or greater extent. In *P. orientalis*, it practically vanishes, while in *P. occidentalis*, it persists along the main nerves, and on the stalk. The hybrids resemble one or other species as regards this character. The Oriental Plane, the leaves of which become bare and unprotected, grows in the wild state as a rule in wet places beside streams or springs, and is amply supplied with water. In the four species which are natives of the arid climate of Arizona, California, and Mexico, the woolly covering remains on the surface of the leaf. In other words, the greater the demand of the tree for water, the more complete is the protection afforded against transpiration by the pubescence of the leaf.

In all species and varieties of planes, the leaves are remarkably inconstant in the outline of the lobes, which are sometimes entire in margin, sometimes minutely toothed, and at other times with large sinuate teeth or lobes. The leaves, two to five in number on a single branch, are all somewhat different in outline. The variation in the occurrence, size, and number of the teeth does not seem to constitute even a varietal character, and is due to unknown causes. The Oriental Plane, judging from numerous cultivated trees in Britain and from dried specimens of wild trees preserved at Kew, is singularly variable in this respect; and no satisfactory division of this species into geographical forms is possible. Peculiar entire small leaves characterize some planes in Cyprus, but other trees in the island have very dentate leaves. The plane of Kashmir has very large leaves, while that of Greece and Asia Minor is intermediate in size between the Kashmir and Cyprus forms. In *P. occidentalis* there are several types of foliage which cannot be correlated either with the age of the tree or with the region of distribution, or with any known cause. Some adult trees, for example, bear small leaves, with three distinct lobes, entire in margin except for the terminal point of each lobe. Other adult trees bear large leaves, with indistinct lobes, having numerous small teeth on the margin.

The base of the leaf, which may be cordate, truncate, or cuneate, cannot be relied on for the discrimination of species, as it is an inconstant character, apparently dependent on the vigour of the branch or of the tree. In some of the hybrids the form of the base is comparatively fixed; thus in *P. pyramidalis* it is scarcely ever cordate, while in *P. acerifolia* the terminal leaf has a very cordate base.

What is really specific in the shape of the leaf is the depth of the lobes. The significance of lobed leaves in the life of a tree is obscure; but lobing may have some relation to the demand of the foliage for light, as the gaps between the lobes allow illumination of the layer of leaves beneath. A study of the habitats of variously lobed planes, maples, &c., might elucidate this subject. Three species of Platanus with deeply lobed leaves—*P. orientalis*, *P. racemosa*, and *P. Wrightii*—appear to grow habitually on the banks of streams in full sunlight. The species with the shortest lobes, *P. occidentalis*, grows in the midst of the broad-leaved forests of the United States, where it seems to be able to bear a considerable amount of shade.

The extent of the lobing of the leaves being an important character in the discrimination of the various species and hybrids, its accurate measurement is desirable. This is affected by the use of a significant number, referred to as λ, which is fixed for any given plane figure, with perimeter p and area a, by the formula $\lambda = \frac{p^2}{a}$. For a circle, which has the minimum perimeter of all

plane surfaces, λ is 4π or 12·56; for a square, λ is 16; for lobed and indented plane figures, λ becomes a large number. Representative leaves of all the species and hybrids have been accordingly measured, the area being obtained by the use of squared paper, and the perimeter by an opisometer or map-measurer, which is run round the edge of the leaf.

The significant numbers obtained by the measurements of the leaves of the London Plane, of its descendants, and of the two parent species, confirm in a striking way the hybrid theory, and may be tabulated thus:—

Parents:—			
occidentalis,	21–39,	average	30
orientalis,	60–123	„	91
1st cross:—			
acerifolia,	31–44	„	37
2nd generation:—			
pyramidalis,	28–36	„	32
hispanica,	37–56	„	46
cuneata,	73–100	„	86
digitata,	67–87	„	77
cantabrigensis,	28–36	„	32
parviloba,	25–34	„	29

The first cross is thus seen to be intermediate between the two parents; and the second generation ranges from one extreme to the other.

The fruit affords good specific characters. The number of fruit-balls on each peduncle is characteristic, solitary in *P. occidentalis*, and numerous, 3–6, in *P. orientalis*. It is rather variable in *P. acerifolia*, 2–3 in some trees, 2–5 in others. Of the second generation hybrids, *P. hispanica* is most like the American species, the fruit-balls being usually solitary, occasionally 2, and rarely 3. In *P. pyramidalis* they are predominantly 2, but are often solitary. The size of the fruit-balls is also a specific character, as they are considerably larger in *P. occidentalis* than in *P. orientalis*; while those of *P. acerifolia* are intermediate. The fruit-balls are very large in *P. pyramidalis*. The surface of the fruit-ball in *P. occidentalis* shows on examination the heads of the achenes tightly packed together, and not separated visibly by hairs. In *P. orientalis* the tips of the achenes are plainly separated by pubescence. In *P. acerifolia*, *hispanica*, *cuneata*, and *parviloba* the achenes, though tightly packed, are separated by a slight pubescence. In *P. pyramidalis*, *cantabrigensis*, and *digitata* the surface of the fruit-ball is like *P. orientalis*.

The achene (Plate IX, fig. 9) shows specific characters in the presence or

absence of pubescence, in the shape of the enlarged head which surmounts the elongated body, and in the persistence or fall of the style. In *P. orientalis* the fruit-ball is very bristly on the surface, as the style persists. In *P. occidentalis* the fruit-ball is comparatively smooth, as the style at an early period breaks off close to its insertion on the summit of the achene. In *P. acerifolia* and some of its descendants, the influence of the American parent is shown in the irregular breaking off at a late period of many of the styles either close to or at a little distance from their insertion; but as some of the styles persist, the ball remains more or less bristly on the surface.

The achene in all the species is surrounded at its base by a ring of rigid unbranched hairs. The body of the achene is bare of hairs in *P. occidentalis*, but covered with medium-sized matted branched hairs in *P. orientalis*, and also in *P acerifolia*; but in *P. hispanica* these hairs are very sparse. At the junction of the body with the head of the achene a band of minute matted branched hairs exists in all the species. The shape of the head of the achene is specific; cap-like, flattened, and bare of hairs in *P. occidentalis*; conical and covered with minute branched hairs in *P. orientalis*. The influence of the American parent is shown in the glabrous head of the achene of *P. acerifolia* and some of its descendants. The achene is perfect, containing an embryo, in the two species and in most of the hybrids; but in *P. cantabrigensis* and *P. digitata* the embryo is not developed.

These numerous minute differences in the achenes, fruit-balls, and leaves of the various planes are exactly of the same kind and range as occur in hybrids artificially produced, and afford strong presumptive evidence that from *P. acerifolia*, an accidental cross between two wild species, the other planes, such as *P. pyramidalis*, *P. hispanica*, &c., only known in the cultivated state, are descended.

When the seed of a first cross is sown the seedlings produced constitute a mixed and varied crop, in which are variously combined the characters of the two parents. The best proof then of the hybrid nature of *P. acerifolia* is the fact that it does not come true from seed, which appears to have been known[1] to Lorberg in 1875. Two sowings made in recent years establish this very clearly. There are now eight seedlings planted in the Queen's Cottage grounds at Kew which were raised from seed of *P. acerifolia* that was sown in April, 1911. These range in height from 4 to 10 feet, and are very diverse in foliage, some closely resembling *P. orientalis* and others resembling *P. occidentalis*, a few being intermediate. One of them appears to be identical

[1] Gadeceau (1894) quotes a note of Jules Bruneau, the celebrated horticulturist, that on sowing *P. acerifolia* (commonly known to French nurserymen as *P. occidentalis*) there is obtained a mixture of planes, the leaves of which are of diverse shapes.

with *P. hispanica*, and another with *P. cuneata*. There are also two seedlings at Glasnevin which are the only suvivors of a set raised for me at Cambridge in 1910 from seed of a large London Plane growing near the main gate at Kew. The rest of the set died from drought, having been transplanted into a field in that dry year. These two seedlings are extremely unlike in foliage; one has leaves indistinctly lobed resembling those of *P. occidentalis*. The other has deeply lobed leaves, and differs little from *P. cuneata*. See Plate VIII, fig. 8.

Several unsuccessful attempts have been made since 1910 to raise a numerous set of seedlings of the London Plane with the object of studying the botanical characters of the various classes which are wont to occur in the second hybrid generation. Space for such experiments is scarcely available, as planes do not assume for several years their adult foliage, and do not produce fruit till they are twenty or thirty years old.

The artificial production of a cross between *P. orientalis* and *P. occidentalis* has not been possible in this country, where there exists no adult living tree of the latter species from which pollen could be obtained. An attempt to reproduce *P. acerifolia* by cross-pollination of the Occidental and Oriental Planes might be made in the United States, using the native tree as the female parent.

A description of the two parent species, as well as of *P. acerifolia* and its descendants, will now be given in detail, supplemented with some information concerning the occurrence of the latter in cultivation.

1. **Platanus orientalis**, L. Oriental Plane.

Plate V, fig. 1.

A large tree, with wide-spreading branches. Leaves moderate in size, six to seven inches across, with five distinct lobes extending at least half way to the base of the blade, oblong-triangular, entire or toothed; base of the blade usually truncate, with a central cuneate part; main nerves arising at some distance above the junction of the petiole with the blade; tomentum usually falling off, so that the blade and petiole are glabrous at the end of the season. Fruit-balls 2–7, bristly, averaging one inch in diameter; achene with a short tomentose body and a conical tomentose head, prolonged into a persistent style.

The above description applies to trees indigenous in Greece and Asia Minor. Most of the trees cultivated in England are of this origin. The leaves of the trees cultivated in Kashmir and Persia are much larger, with broad oblong-triangular segments, indicating perhaps a distinct race. A small-

leaved form exists in Cyprus, possibly a peculiar geographical variety. Cultivated trees in England show an apparent great diversity in the form of the leaf; but the range of variation is chiefly confined to the width of the lobes and the dentation of the margin.

No attempt is made in this paper to deal with the possible varieties of this species in the wild state, for which a study in the field is requisite.

The Oriental Plane, which is not readily propagated from cuttings, is never used for planting in streets in Europe or North America. It is much less hardy on the Continent than the London Plane.

2. **Platanus occidentalis,** L. Occidental Plane.

Plate V, fig. 2.

A very large tree, variable in the size and shape of the leaves, which in some cases are 5-6 inches across, in others 8-10 inches wide; either obscurely or plainly 3-lobed; lobes short and triangular, the sinuses separating them not reaching one-third the length of the blade; base cordate, rarely showing a central cuneate part; main nerves three, normally arising at the junction of the petiole with the blade; margin rarely entire, usually with few or many, small or large sinuate teeth; tomentum persistent on the nerves and petiole. Fruit-balls solitary at the end of the peduncle, smooth, large, averaging $1\frac{1}{4}$–$1\frac{1}{2}$ inches in diameter; composed of closely packed achenes, and not showing any hairs between them. Achene with a glabrous flattened head, bearing in a pit on its summit the remains of the style, which breaks off early; body elongated, glabrous except for the ring of long hairs at the base and the narrow tomentose ring at its junction with the head.

P. occidentalis is the most massive and tallest deciduous tree of the great forests of the eastern half of the United States, where it usually grows on alluvial soil. It is an extremely rare tree in cultivation in Europe, and is difficult to keep alive, as it suffers much when young from the continued effect, year after year, of spring frosts on its tender shoots. It is easily raised from seed, and is said to be readily propagated by cuttings. It is unsuccessful as a street tree in the towns of the United States. The Superintendent of Parks Washington, says that young trees of this species are very promising in streets for ten or fifteen years, when they almost invariably begin to die. The cause of death is obscure, but is generally attributed to the attacks of a minute fungus, *Glœosporium nervisequium*, which kills the young leaves in May or June, though a second crop of leaves clothes the branches in July. *Platanus acerifolia* is less subject to this disease. Whatever be the explanation, it is very remarkable that this magnificent forest tree is quite unsuitable for street planting in its own country, where the London Plane is so useful for this

purpose. This has long been the case, as Parsons, the well-known nurseryman at Flushing, Ohio, wrote in 1877, that "it is vastly inferior to the London Plane in outline, durability, and health."

P. glabrata, Fernald (1901), appears to be a form of *P. occidentalis* occurring in north-eastern Mexico, with more pubescence than usual persisting on the petiole and under surface of the leaf.

3. **Platanus acerifolia**, Willd. London Plane.

Plate VI, fig. 3.

A hybrid between *P. orientalis* and *P. occidentalis*, of which the history is given above. A large tree, wide-spreading in habit, with pendulous lower branches. Leaves large, often 10 inches in width, usually cordate at the base, with five distinct triangular lobes, the main nerves arising at the junction of the petiole with the blade; tomentum persistent on the petiole and main nerves. In vigorous trees the terminal leaf on the branch has long lobes, and the base is deeply and narrowly cordate, so that the point of attachment of the petiole is not far from the centre of the whole blade. The lobes are either entire in margin or with one, two, or more short teeth. Fruit-balls, usually 2 or 3, in some trees 2 to 6, rarely 1; large, $1\frac{1}{4}$ inch in diameter; bristly. Achene with a short conical glabrous head and a tomentose body; style often during winter breaking off at a variable distance from its insertion.

This tree is very vigorous, and it produces good seed from which seedlings can be easily raised; but in nurseries it is invariably propagated by cuttings. The seedlings, which are described above, are not uniform.

There are two planes with variegated leaves, which in shape resemble the London Plane:—(1) Var. *Suttneri*, leaves large, white over most of the surface, but the centre with green spots; and (2) Var. *aureo-varicgata* (var. *Kelseyana*, Schneider), leaves spotted in the centre with yellow, margin green.

These are probably seedlings of *P. acerifolia*, as variously coloured sports are apt to occur in the midst of a crop of hybrid seedlings.

4. **Platanus hispanica**, Muenchhausen (1770).

Plates IV and VII, fig. 5.

Platanus orientalis hispanica, Loudon (1838).
Platanus occidentalis hispanica, Wesmael (1867).
Platanus californica, Hort.
Platanus macrophylla, Hort.

A tree with a tall straight stem and moderately wide crown; leaves larger

than in the other hybrid planes, often 10–12 inches in width, readily distinguished by the persistent tomentum on the nerves and petiole, and by the five distinct short broadly triangular dentate lobes; base shallowly cordate or truncate, with or without a central cuneate part; main nerves arising at the junction of the petiole with the blade or rarely at some distance above it. Fruit-balls usually solitary, occasionally 2, rarely 3, bristly, moderately large, $1\frac{1}{8}$ inch in diameter. Achene: body glabrous, except for a few scattered hairs; head not so flattened as in *P. occidentalis*, and not so conical as in *P. orientalis*, glabrous; styles variable in persistence, some breaking off about the middle, others near their insertion.

The history of *P. hispanica* is as follows:—Miller, in his "Dictionary," edition 7, published in 1759, mentions in all four planes. The Occidental and Oriental Planes, he says, "are undoubtedly distinct species, but there are two others in English gardens which I suppose to be varieties that have accidentally risen from seed; one is titled the Maple-leaved Plane (*P. acerifolia*) and the other is called the Spanish Plane tree." He considered *P. acerifolia* to be a seminal variety of *P. orientalis*, as seeds of a large Oriental Plane in Chelsea Garden produced plants of this sort several times. His description of the Spanish Plane is unmistakable:—"It has larger leaves than the other sorts, more divided than those of the Occidental Plane, sharply indented in the edges, light-green, foot-stalks short and covered with a light down. It grows faster than the other sorts, but I have not seen any very large tree of this kind." He further states that he planted four planes, one of each sort, in 1731, of which *P. acerifolia* had made the greatest growth in 1765.

It would appear from this evidence that *P. hispanica* originated some time before 1731, and was probably a seedling of one of the early London Planes, which by this time had been bearing seed for many years. This beautiful tree has always been rare in cultivation. It is cited in Loddiges' nursery catalogue of 1836 under the correct name *P. hispanica* given to it by Muenchhausen in 1770. Rivers imported it from France in 1856 under the name *P. macrophylla*, and says it is very hardy, growing freely from cuttings. There are several examples at Kew, notably two fine trees beside the Azalea garden, which were procured in 1878 from Van Houtte under the name *P. californica*. These have tall, straight stems, with ascending branches above and pendulous branches below, bearing magnificent foliage. *P. hispanica* has been considered by many authors to be a variety of *P. occidentalis*; but the achenes clearly show it to be of hybrid origin.

5. **Platanus pyramidalis**, Rivers, in "Gardeners' Chronicle," 1856, p. 86.

Plate VI, fig. 4.

P. vulgaris pyramidalis, Petzold and Kirchner (1864).
P. orientalis pyramidalis, Bolle (1875).
P. occidentalis pyramidalis, Jaennicke (1899).

A tree compact in habit when young, but with wide-spreading branches when old, which, however, do not droop. Leaves moderate in size, about 6-7 inches wide, glabrous, with usually only three lobes, which are short, broadly triangular, and slightly toothed: base truncate, with a short cuneate centre, the main nerves arising a short distance above the junction of the blade with the petiole. Fruit-balls, one or two, very large, 1½–1¾ inch in diameter, bristly: achene with tomentose elongated body and nearly glabrous conical head, terminating in a persistent style.

This tree is now much used in street-planting, having been imported on a large scale from the Continent during the last forty years. It is probably a seedling, which originated in France about 1850, as it was first mentioned by Rivers as an introduction from that country in 1856. He described it as "fastigiate when young, becoming more diffuse as it increases in age, but not spreading at all to the extent of *P. acerifolia*." It is very satisfactory in streets on account of its form; but it is scarcely so vigorous as *P. acerifolia*. It was stated in 1875 to have been widely distributed in France on account of its bright green colour and the ease with which it could be propagated from cuttings, and these qualities have contributed to its popularity in England.

6. **Platanus cuneata**, Willd.

Plate VII, fig. 6.

P. orientalis cuneata, Loudon (1838).
P. nepalensis, Morren (1848).
P. orientalis nepalensis, Wesmael (1868).

A tree, moderate in vigour, with deeply five-lobed leaves, which are conspicuously dentate, becoming practically glabrous when adult, differing mainly from *P.* [illegible]s in the very cuneate base: main nerves arising a considerable distance above the junction of the petiole with the blade. Fruit-balls small, rarely exceeding ¾ inch in diameter, 2, 3, or 4 on the peduncle, composed of relatively few achenes, often imperfect, with a tomentose body and a glabrous conical head ending in a persistent style.

Young trees of ordinary *P. orientalis*, and certain wild forms when adult, as [illegible] plane with cuneate leaves, scarcely if at all, distinguishable

from *P. cuneata*. The latter is recognizable by its peculiar fruit, which seems to stamp it as of hybrid origin, dating from some time previous to 1789, when it was known to Aiton. The fruit-balls are small, and often made up of imperfect achenes, in which the embryos are wanting. Such imperfect fruit often results from hybridity. Loudon describes *P. cuneata* as a stunted-looking low tree; but it grows well at Kew, and there are trees of moderate size in various parks and gardens.

7. **Platanus digitata**, Gordon, in "The Garden," 1872, p. 572.

Plate VIII, fig. 7.

A small tree, like *P. orientalis* in foliage; but the leaves are considerably smaller, not exceeding 5 inches broad, with wider and deeper sinuses between the elongated and toothed five lobes; base truncate with a short central cuneate part; main nerves arising at some distance above the junction of the petiole with the blade; tomentum persisting on the petiole and at the origin of the main nerves. Fruit-balls, two or three on the peduncle, bristly, very small, about ½ inch in diameter, composed of a few imperfect achenes, no embryos being developed; achene with tomentose body and nearly glabrous short conical head ending in a persistent style.

In the Kew herbarium there is a dried fruiting branch taken from a tree in the Chiswick Garden of the Royal Horticultural Society, which is labelled *P. digitata* by Gordon and agrees with his description. It is rare in cultivation, and we know of only[1] two living trees, one in the Cambridge Botanic Garden and the other at Bicton. Both are slow in growth and stunted in habit, and are identical with *P. digitata*, though they have been erroneously labelled *P. cuneata*. Gordon's account of the tree being introduced from the Caucasus is unreliable; and is due to Koch's statement that *P. cuneata* was a native of the Caucasus. There appears to have been at the time considerable confusion between *P. cuneata* and *P. digitata*. Though there is no direct evidence for it, in all probability *P. digitata* is a seedling of *P. acerifolia*.

8. **Platanus cantabrigensis**, A. Henry, *Hybrida nova*.

A tree in the Cambridge Botanic Garden of unknown origin, and without a label. Leaves small in size, not exceeding 5 inches in width, with five

[1] The Mall, London, is largely planted with a mixture of the true London Plane and of the Pyramidal Plane. There are also a few planes of a third sort growing much more slowly than either of these. It has deeply lobed leaves, and may be identical with *P. digitata*.

distinct, short, triangular lobes, entire or with one or two teeth; base truncate, with a cuneate central part; main nerves arising at the junction of the petiole with the cuneate part of the blade: glabrous except for a tuft of hairs at the origin of the nerves. Fruit-balls, three on the peduncle, small, about ¾ inch in diameter, composed of relatively few imperfect achenes, in which no embryos are present: achene dome-shaped, flatter than in *P. orientalis*, which it otherwise resembles.

This rare tree resembles *P. occidentalis* in the form of the leaves, except as regards the peculiarly nerved cuneate base; but the fruit scarcely differs from that of *P. orientalis*. It is like one of the two seedlings of *P. acerifolia* which were raised at Cambridge and are now at Glasnevin, and may be of similar origin.

9. **Platanus parviloba**, A. Henry, *Hybrida nova*.

A grafted tree at Kew, of unknown origin and without a label, devoid of the vigour of *P. acerifolia*. Leaves variable: the larger terminal ones, about 6 inches broad, with five short slightly dentate oblong-triangular lobes, and a truncate base, with the main nerves arising at the junction of the petiole with the blade; smaller leaves with three entire triangular lobes and a rounded base, the fourth and fifth lobes being represented by a tooth; tomentum persistent at the base of the nerve and on the petiole. Fruit-balls, 3-6, small, about ¾ inch in diameter, made up of relatively few achenes, some of which are imperfect, while others contain an embryo. Achene with tomentose body and conical nearly glabrous head; style often breaking off near its insertion.

This peculiar tree, while closely resembling the London Plane, is clearly distinct, and is probably a seedling of the second generation.

Vein-islets.—An attempt was made to discover the ages of the different hybrid planes by measuring the "vein-islets" of their leaves. H. M. Benedict, in a study[1] of the senile changes which occur in the wild vine, Vitis vulpina, found the relative proportion of the soft (photosynthetic) tissue to decrease as the plant grows older, owing to the encroachment of the fibrous tissue. On holding up a leaf to the light the veinlets are seen to form a network of fibrous tissue, with meshes of soft tissue between, which are called "vein-islets." The older the plant, the smaller becomes the average area of the vein-islets, as is well shown in the following table:—

[1] Cornell Univ. Agric. Exp. Station, Memoir No. 7 (1915), "Senile Changes in Leaves of Vitis vulpina."

Age of vine.	Average age of the vein-islets of the leaf.
3 years old,	0·515 sq. mm.
6 „	0·394 „
14 „	0·330 „
28 „	0·204 „
50 „	0·173 „
70 „	0·137 „

Benedict was thus able to determine the age of a plant, by the average area of the vein-islets of the leaves which it bore. The progressive diminution of the soft tissue with age indicates senile decay. Benedict believes that a twig cut from a mature tree, having undergone senile change, will not produce when propagated a new tree endowed with the youthful vigour of a seedling. It will possess merely the lessened vigour of the adult tree from which it was taken. This agrees with the view held by practical gardeners, that varieties which are propagated vegetatively (by cuttings, etc.) ultimately lose their vigour and gradually die out. If this view is correct, it is important to renew varieties of seed. Even the most vigorous first cross would eventually require to be produced again by cross-pollination. The plant breeder is obliged, when old varieties, whether hybrids or sports, become enfeebled, to develop new varieties from seed to take their place.

Measurements of the vein-islets of the different planes have perhaps confirmed Benedict's views to some extent; but further research is required. The results obtained, though not capable in many cases of satisfactory explanation, are now given for what they are worth.

1. In a series of leaves from trees of *P. occidentalis* growing in the United States and in no case originating from cuttings, the average areas of the vein-islets (Pl. IX, fig. 10) were:—

P. occidentalis.	Average area of the vein-islets of the leaf.
Seedling, 1 year old,	0·26 sq. mm.
Seedling, 2 years old,	0·17 „
Two trees, 5 feet high, and probably 5 years old,	0·07 „
Tree, 10 feet high,	0·05
Tree, 30 feet high,	0·03
Tree, 50 feet high,	0·03 „
Other trees, size not stated,	0·03–0·05 sq. mm.

It would appear from these figures that the size of the vein-islets is of

value in indicating whether an occidental plane is a young seedling or a small tree; but is useless for the determination of the comparative ages of trees over 20 feet high.

2. A series of leaves from trees of *P. orientalis* growing in this country showed areas of vein-islets as follows:—

P. orientalis.	Average area of the vein-islets of the leaf.
Tree from Kashmir, said to be 19 years old, from seed,	0·05 sq. mm.
Tree from seed of plane at Ephesus, 44 years old,	0·05 „
Tree at Weston Park, probably 250 years old,	0·06 „
Tree at Kew, about 130 years old,	0·07 „
Tree from seed of plane at Thermopylae, 114 years old,	0·10 „
Tree from seed of Bujukdere plane, 50 years old,	0·20 „
Cutting raised from last tree, 15 years planted,	0·14 „

These measurements are too discordant to yield any satisfactory results. The age of the trees of this species cannot be determined by the size of the vein-islets.

3. The leaves of various trees of *P. acerifolia* gave the following measurements of the vein-islets:—

P. acerifolia.	Average area of the vein-islets of the leaf.
Tree at Ely, planted 250 years,	0·12 sq. mm.
Tree at Ranelagh, same age and size,	0·12 „
Tree at Peamore, probably of the same age,	0·11 „
Tree at Kew, planted 150 years,	0·12 „
Tree at Kew, planted 120 years,	0·12 „
Tree at St. George-in-the-East, London, planted 90 years,	0·12 „
Cutting from the latter tree, planted 12 years,	0·13 „
Rooted cutting from Slocock's nursery, planted 1 year,	0·12 „

The area of the vein-islets in the leaves of these different individual trees is practically constant. This is some presumptive proof, if Benedict's views are accepted, that all London Planes are of the same age, being ultimately cuttings from one original tree. The large size of the vein-islets, corresponding to that of *P. occidentalis*, about three years old, shows the extraordinary vigour of *P. acerifolia*, if its great age, 250 years, is taken into account; and confirms to that extent the view that it is a hybrid of the first generation.

4. The leaves of the planes of the second generation show the following measurements of the vein-islets :—

	Average area of the vein-islets of the leaf.
P. hispanica, . . .	0·10–0·13 sq. mm.
P. pyramidalis, . . .	0·14–0·16 „
P. cuneata, . . .	0·08–0·13 „
P. digitata, . . .	0·14–0·16 „
P. parviloba, . . .	0·14–0·17 „
P. cantabrigensis, . . .	0·14 „

The oldest of these, judging from its history, is *P. hispanica*; and it is practically identical with *P. acerifolia* in the area of the vein-islets. The other planes originated later, and except one (*P. cuneata*) show larger average areas. This is what might be expected, if Benedict's view is correct.

Synopsis of the species of Platanus.—A synopsis of the six living species, showing the main differences in the character of the leaves and fruits, is now given :—

A. **Adult leaves glabrous or nearly so, and as a rule conspicuously toothed in margin.**

1. *P. orientalis*, L. See p. 16. Greece, Cyprus, Crete, Rhodes, and Asia Minor.

Leaves with five elongated lobes. Fruit-balls, 2–6 on the peduncle, bristly, the styles persisting.

2. *P. occidentalis*, L. See p. 17. Eastern North America from Toronto to Texas.

Leaves with three or five short lobes. Fruit-balls solitary, smooth, the styles falling off early.

B. **Adult leaves with dense tomentum persisting on the lower surface; usually entire in margin, rarely with minute teeth.**

* *Lobes of the leaf, 5 or 7, elongated, extending beyond the middle of the blade.*

3. *P. Wrightii*, Watson. Arizona, Mexico.

Leaves variable at the base, often deeply cordate; sinuses between the lobes narrow. Fruit-balls, 2–4 on the peduncle, comparatively smooth, the styles breaking off near their insertion. Achene very tomentose, as in *P. orientalis*, but with the apex more rounded and flattened than in that species.

4. *P. racemosa*, Nuttall. California.

Leaves similar to those of *P. Wrightii*, but base less deeply cordate and lobes broader. Fruit-balls, 3–7 on the peduncle, very bristly, the styles persisting. Achene glabrous except for the basal ring of long hairs and a trace of tomentum at the junction of the elongated body with the shortly conical head.

** *Lobes of the leaf, 3 or 5, short, not extending to the middle of the blade.*

5. *P. Mexicana*, Moricand. Northern Mexico.

Leaves, 3–5-lobed, densely white tomentose beneath. Fruit-balls solitary, bristly, the styles persisting. Achene similar to that of *P. orientalis*.

6. *P. Lindeniana*, Martens and Galeotti. Southern Mexico.

Leaves with usually three very short lobes, ending in bristle-like points, and covered beneath with a dense rusty tomentum. Fruit-balls, 2–5 on the peduncle, bristly, the styles persisting. Achene with tomentose conical style and short glabrous body.

Notes by Professor A. Henry.

The numerous measurements of the lobing and vein-islets of the leaves, and the drawings and descriptions of the fruits, have been carried out by Miss Flood. For the rest of the paper I am mainly responsible.

A full account of the genus Platanus, with details of the distribution, cultivation, remarkable trees, &c., of the various species, is given by Elwes and Henry, "Trees of Great Britain," iii, 611–629 (1908). In this work, p. 620, I did not accept as correct the hybrid origin of *Platanus acerifolia*. The researches on elms, poplars, and other cultivated trees which I subsequently carried out, led me to reconsider this view, and to undertake the investigations which are the subject of this paper. In my opinion the evidence establishes beyond doubt that the London Plane is of hybrid origin.

EXPLANATION OF PLATES.

PLATE IV.

Platanus hispanica, Muench. Tree 60 feet high, at Bayfordbury, Herts. Photograph kindly sent by the owner, Mr. H. Clinton Baker.

PLATE V.

Fig.

1. *Platanus orientalis*, L. Branches with leaves and fruit from a tree at Jesus College, Cambridge, raised from seed brought from Thermopylae in 1802.

2. *Platanus occidentalis*, L. Branch with leaves and fruit from a wild tree in United States. A seedling, one month old, is also shown.

PLATE VI.

3. *Platanus acerifolia*, Willd. Branch with leaves and fruit from an old tree at Kew.

4. *Platanus pyramidalis*, Rivers. Branch with leaves and fruit from a tree at Kew.

PLATE VII.

5. *Platanus hispanica*, Muench. Branch with leaves and fruit from a tree at Kew.

6. *Platanus cuneata*, Willd. Branch with leaves and fruit from a tree at Kew. A seedling of *P. orientalis* is also shown.

PLATE VIII.

7. *Platanus digitata*, Gordon. Branch with leaves and fruit from a tree in Cambridge Botanic Garden.

8. Two seedlings at Glasnevin, now 7 feet high, raised in 1910 from seed of a *Platanus acerifolia* at Kew, showing the diversity in foliage of the second (F_2) generation.

PLATE IX.

Fig.

9. *Platanus*: achenes (× 5), with basal tuft of hairs removed, except on the right hand, to show the tomentum.

Parent species:—1, *P. occidentalis*; 2, *P. orientalis.*

First generation hybrid:—3, *P. acerifolia.*

Second generation hybrids:—4, *P. hispanica*; 5, *P. cuneata* 6, *P. parviloba*; 7, *P. pyramidalis*; 8, *P. cantabrigensis*; 9, *P digitata.*

10. *Platanus occidentalis*; vein-islets of the leaf (× 10).

a. Seedling, 1 year old.
b. Seedling, 2 years old.
c. Tree, 30 feet high.
d. Tree, 50 feet high.

Platanus hispanica.

Henry and Flood.—The London Plane.

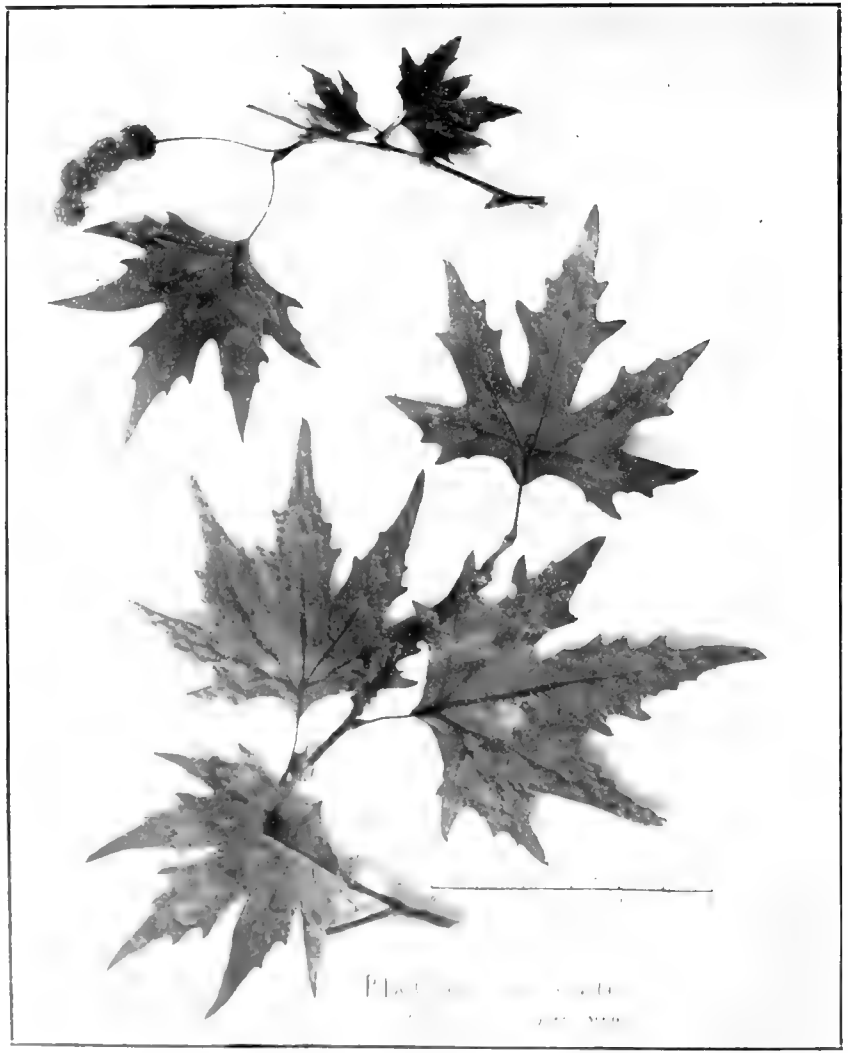


Fig. 1. Platanus orientalis.

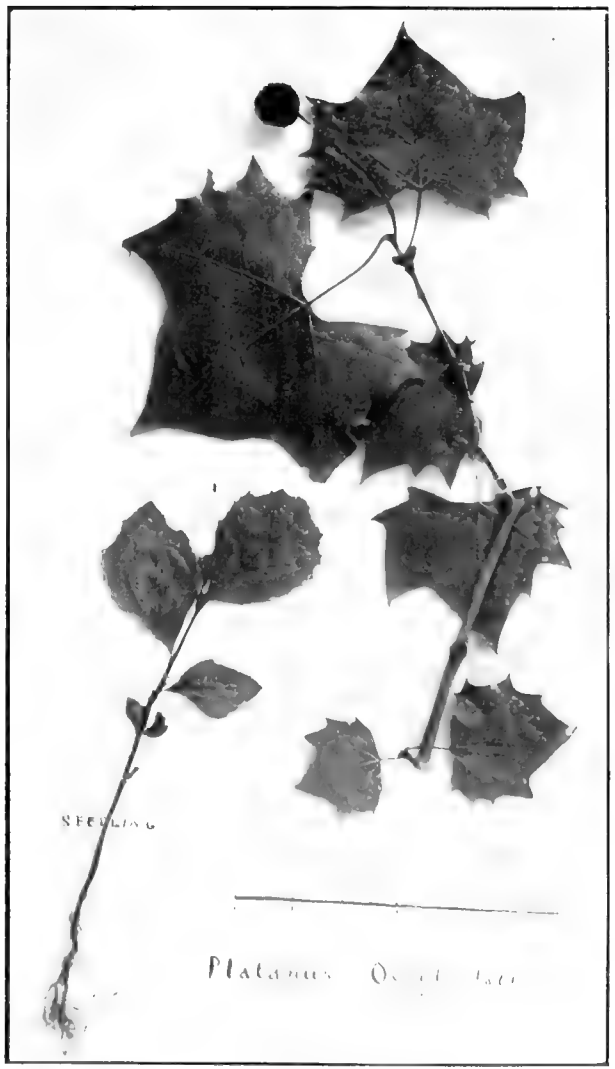
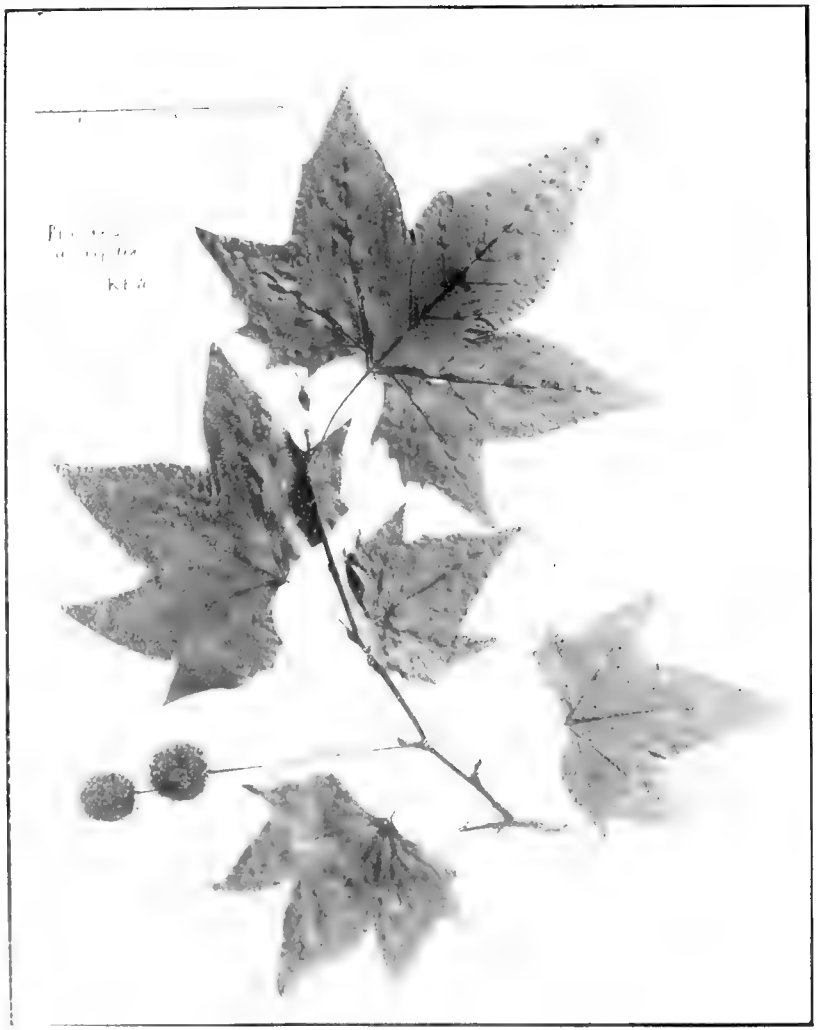


Fig. 2.—Platanus occidentalis.

HENRY AND FLOOD.—THE LONDON PLANE.



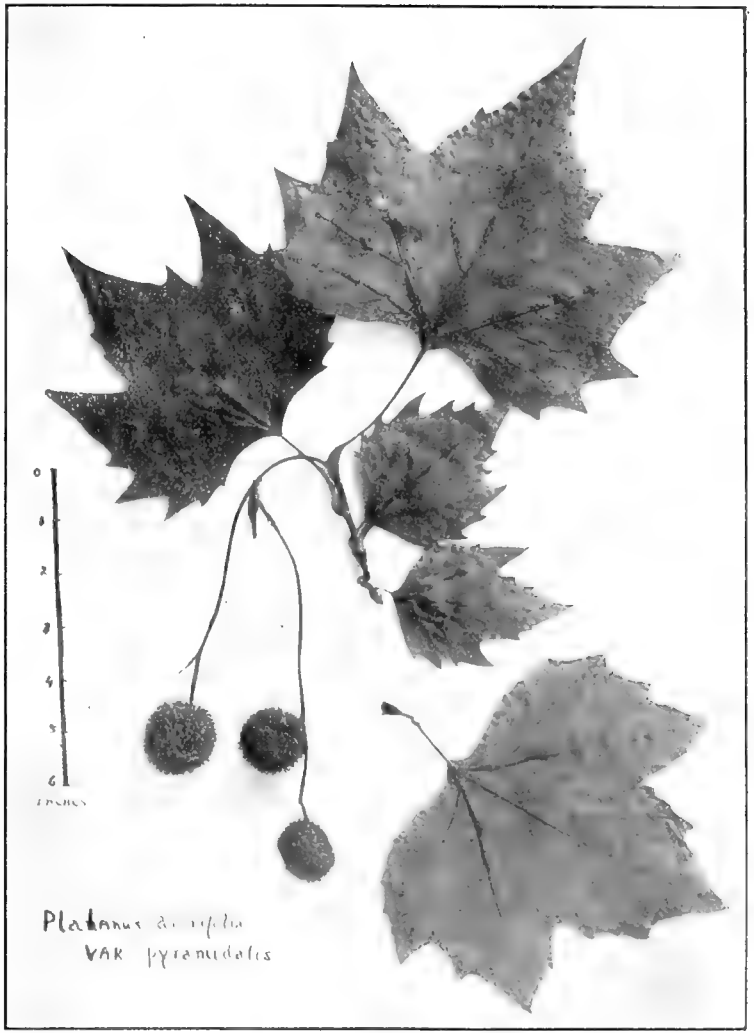


Fig. 4. Platanus pyramidalis.

Fig. 5.—Platanus hispanica.

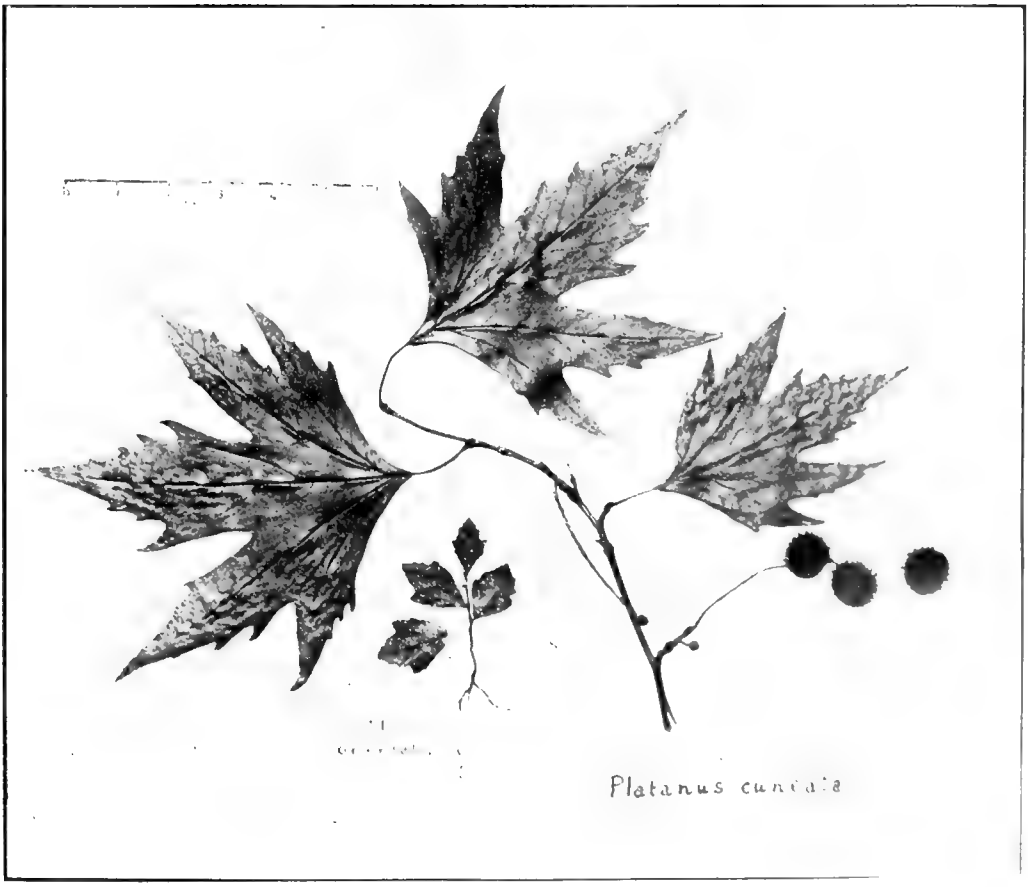


Fig. 6.—Platanus cuneata.

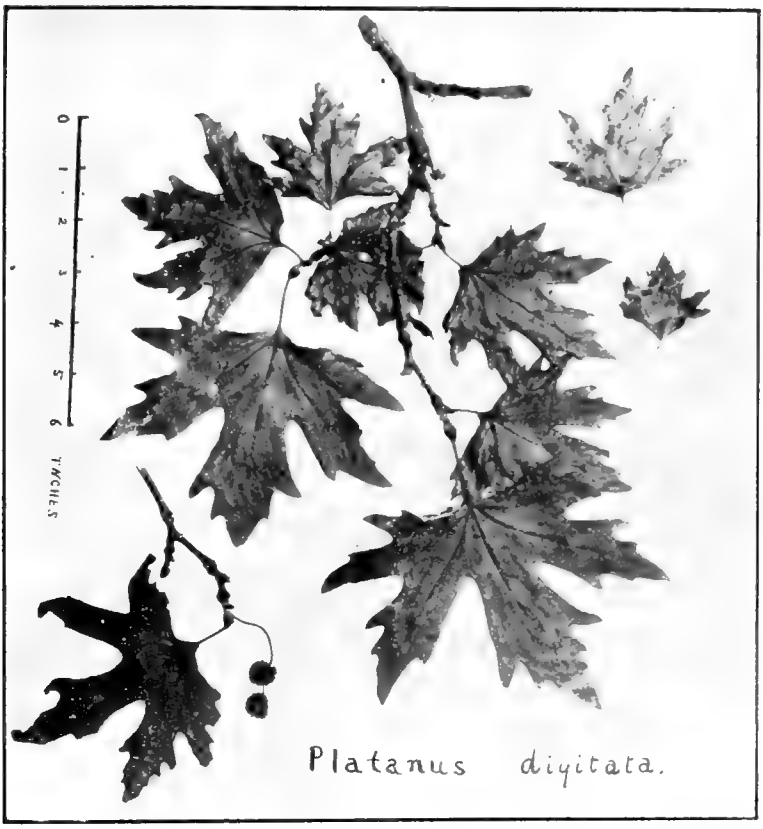


Fig. 7.—Platanus digitata.

Fig. 8.—Platanus acerifolia seedlings.

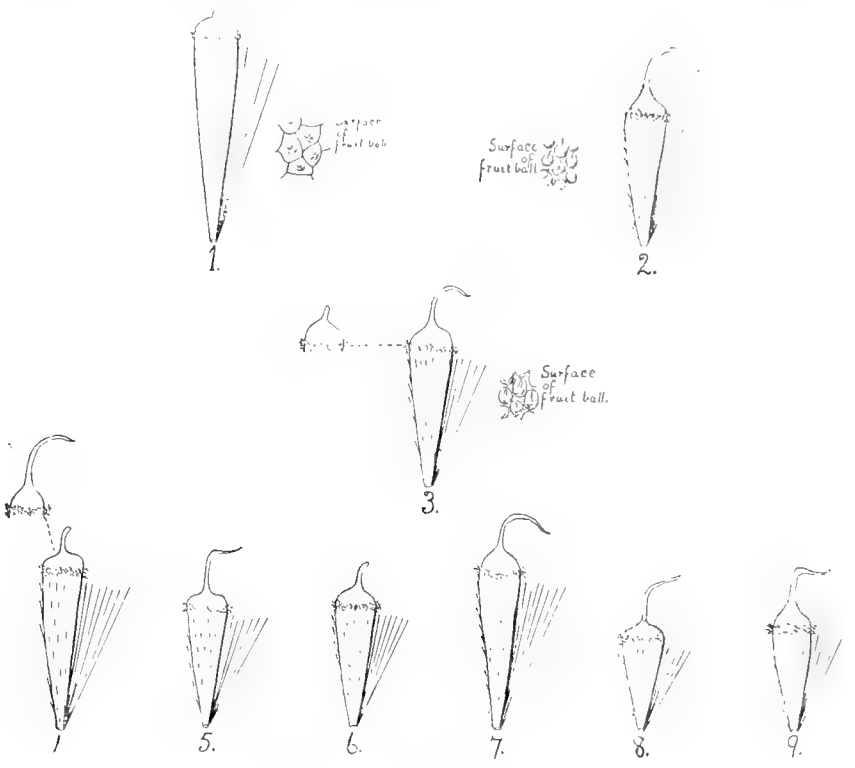


Fig. 9.—Achenes of Platanus.

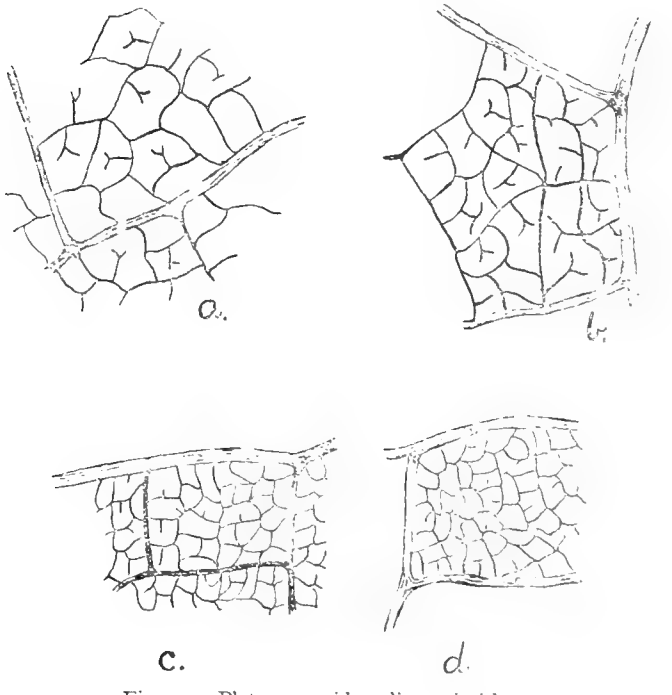


Fig. 10.—Platanus occidentalis : vein-islets.

III.

ON THE OCCURRENCE OF TROPICAL DRIFT SEEDS ON THE IRISH ATLANTIC COASTS.

By NATHANIEL COLGAN.

(Plate X.)

[Read February 10. Published September 29, 1919.]

Towards the end of October, 1916, my attention having been drawn to the discovery of a tropical bean, the seed of *Entada scandens*, on the shore of Galway Bay, near Inveran, I was induced to make inquiry into the present state of our knowledge of Irish oceanic drift. It very soon appeared that the stranding of strange seeds on the sea beaches from Donegal to Kerry was a fact quite familiar to the dwellers by our Atlantic coasts. These stranded seeds were known as Sea-Beans. They appeared usually after a spell of westerly or south-westerly winds, and were generally supposed to be wafted to our shores by the Gulf Stream. But no specimens were forthcoming; and the accounts given of the nature of the seeds, and of the precise time of their discovery, were disappointingly vague. A diligent search, moreover, through a large body of Irish topographical literature was so unfruitful of any definite result as to convince me that the field of inquiry was untrodden, and might well repay exploration. The search was accordingly continued; but before I had gone much further I learned that Dr. H. B. Guppy, well known for his researches into the insular floras of the Pacific, and into plant distribution in general, had in the press, and almost ready for publication, an exhaustive work on "Plants, Seeds, and Currents in the West Indies and the Azores."[1] The scope of this work, I had reason to believe, would embrace a full discussion of the oceanic drift of the shores of Europe, inclusive of the Irish western seaboard, so that any further investigation on my part would probably be unnecessary. On writing to Dr. Guppy, however, he assured me that the field was still open, as his

[1] London: Williams and Norgate, 1917.

search for Irish material had yielded so little result that he had been obliged to touch but very briefly on this branch of the subject when discussing the tropical drift of the European shores. Dr. Guppy's book appeared early in 1917, and his references to Ireland in his chapter dealing with "West Indian Drift on European Shores" were so meagre as to encourage me to pursue the inquiry, the fruit of which is embodied in the present paper. While making use in many ways of Dr. Guppy's work, a storehouse of erudition indispensable to all who study plant distribution, I have endeavoured to supplement his historical references so far as they relate to the British Isles, and more especially to Ireland, and to show that his expectation of a rich yield of tropical seeds from our Atlantic shores is justified.

Before entering on a discussion of the Irish oceanic drift it may not be altogether unnecessary to point out that the subject owes none of its interest to any possibility of an increase in our island flora through the agency of stranded tropical seeds. Climatic conditions are utterly opposed to any such result, even granting, as we must, that drift seeds from the tropics are from time to time cast up on our beaches in a germinable condition. But if our Irish drift can claim none of the interest arising from such wide-spread effects on plant distribution as are produced by the far more voluminous drift of tropical seas, it has an interest of its own which it is hoped will sufficiently appear when we come to consider its origin.

For convenience of treatment these notes on Irish drift have been roughly divided into three sections, dealing, respectively, with its *history and contents*, its *origin*, and its *botanical characteristics*.

1. The History and Contents of the Irish Sea Drift.

In the "Adversaria Nova" of Mathias de Lobel, a Latin Flora or Herbal, published at London in 1570, we find what appears to be the first reference to the stranding of tropical seeds on the shores of the British Isles, a reference which ante-dates by a century and a quarter the earliest usually made in connexion with this subject. It occurs in a chapter on Phaseoli or Beans (pp. 394-95), in which the writer, having mentioned that he had obtained from ship-masters many different kinds brought from the New World and from West Africa, proceeds in a passage which, translated, runs thus:—

"But we have received as a gift from that most distinguished lady, Dame Catherine Killigrew, excellent in learning and of family illustrious in

England, many other very rare beans which are said to be found in great plenty on the shores of Cornwall, and, what is no less wonderful, no one remembereth of any vessel being cast ashore in that quarter, nor of the happening of any shipwreck there, and yet year by year they find fresh beans, some floating, others of them digged up from where they lay buried in the sands by the shore, as if they had been drifted from the New World by favouring southerly or westerly winds, as is the faith of the Cornish folk that dwell by the English sea."[1]

No description or plate of these New World beans is given by Lobel; but there can be little doubt that they were the large bean-shaped seeds of *Entada scandens*, which are still cast up on the Cornish and Devonshire coasts, and are the most conspicuous and most frequently occurring of all the drift seeds found on European shores.

In the "Philosophical Transactions" of September 26th, 1675, the British drift seeds make their next appearance in literature in a paper entitled "Some Observations made in Scotland by that Ingenious Knight, Sir George Mackenzie." In the course of these observations the writer remarks:—

"'Tis very ordinary to find Molucco Beans on the shoar of the Lewes or other of our Western Isles. They are found fast to the stalks which the Common People supposed to be Sea-Taugles, and laughed at me when I said they were Land-Beans, which made me to write to the Earl of Seafort whilst he lived in the Lewes, that I supposed these apparent tangles were the ham[2] of the Beans, which by long lying in the sea might acquire the likeness. His Lordship examined the matter, and found it so, and he likewise sent to me a piece of a cabbage-tree that was found on that shoar. It is observable that the kernel of these Nuts will be fresh and sound, and the people make boxes for snuff of the Bean-husk."

Here again it is evident that the beans spoken of are the seeds of *Entada scandens*. These were frequently made into snuff-boxes in Scotland; and now that snuff-taking has fallen out of fashion, are made into silver-mounted

[1] I am indebted for this interesting reference to the kindness of Dr. B. Daydon Jackson, our leading authority on the literature of botany. The Catherine Killigrew mentioned here was a learned lady, proficient, it is said, in Hebrew, Greek, and Latin, and wife of Sir Henry Killigrew, returned member of Parliament for Launceston in 1552, and afterwards employed by Elizabeth in many diplomatic missions. See Appendix A for original text.

[2] Provincial for the "haulm" or stalk of certain plants, such as potatoes, peas, or beans. "Tater hams" and "pease hams" are used in Gloucester dialect.

match-boxes which one occasionally meets with in the shops of curio dealers.[1]

Twenty-one years later Doctor, afterwards Sir Hans, Sloane, famous as the founder of the British Museum, published in the "Philosophical Transactions" for September, 1696, a paper entitled "An Account of Four Sorts of Strange Beans frequently cast on Shoar on the Orkney Isles, with some conjectures about the way of their being brought thither from Jamaica, where three sorts of them grow." In this well-known paper, usually the earliest to be quoted in connexion with this subject, we have the first positive identification of the Molocco Beans and the first mention of their discovery on the Irish coast. Sloane, who, in common with later writers, appears to have overlooked the earlier references of Lobel and Sir George Mackenzie, is the first to identify these beans, having recognized them as belonging to species growing in Jamaica, where he had gathered them while preparing his Catalogue of Jamaica Plants, then just published.[2] Amongst the three beans identified was the large chestnut-coloured seed of *Entada scandens*, the "Cocoon" of Jamaica. Of the Entada bean Sloane says:—"This, I am told, is cast up on the coast of Kerry in Ireland." He gives no authority for this statement, and I can only throw out the suggestion that his informant may have been Dr. Vaughan, of Kilkenny, who about this time was in correspondence with John Ray on the subject of Dillisk-eating in Ireland, and in this connexion refers to the use of the seaweed in Kerry.[3]

About thirty years later Sloane in the second volume of his "Natural History of Jamaica," published in 1725, records the appearance on the Irish coast of the seeds of another tropical species, *Guilandina Bonducella*, the Grey Nickar of Jamaica. These, he tells us (page 41), "are often cast ashore by the sea on the north-west coast of Ireland and Scotland."

The next reference to tropical drift seeds on the Irish coast, which occurs nearly a century later, is from the pen of the famous Robert Brown—*Botanicorum facile princeps*, as he has been styled by Humboldt. In a footnote to page 168 of his Appendix to Tuckey's Congo Expedition,[4] published in 1818, Brown tells us that Sir Joseph Banks had identified a drawing of a plant grown from a seed found stranded on the west coast of Ireland as being

[1] I have seen one of these match-boxes mounted in chased silver in a bric-à-brac shop in Nassau Street, Dublin. It was made, not from a drift seed, but from an Entada bean brought home from the East Indies by a military man. N. C.

[2] "Catalogus Plantarum quae in Insula Jamaica sponte proveniunt aut vulgo coluntur." London, 1696.

[3] "Correspondence of John Ray." Ray Society, 1848, p. 305.

[4] "Miscellaneous Botanical Works," vol. i. Ray Society, 1866.

indisputably a representation of the Linnean species *Guilandina bonduc*, the Yellow Nikar of Jamaica. This is the first recorded instance of a tropical drift seed having reached the Irish coast in a germinal condition. No particulars are given as to the name of Sir Joseph's Irish correspondent, as to the precise part of our west coast on which the seed was stranded, or as to the date of the finding. Brown merely tells us that Banks received the drawing from Ireland "some years ago," that is, some years previous to 1818.

Seven years later in the second edition of a popular work entitled "Letters from the Irish Highlands of Cunnemara by a Family Party,"[1] a gossiping volume in which one would little expect to find precise details, an account of the appearance on the Galway coast of no less than four distinct kinds of "Sea Nuts" is given. In a copy of these letters in the library of this Academy there is a manuscript note by an anonymous scribe, who, while qualifying the work as contemptible and prejudiced, attributes the authorship to H. Blake, of Renville, and his family. Internal evidence confirms this attribution. The passage referring to Sea Nuts occurs on page 367, in a letter dated September (1823), and signed "A." The material part runs thus :—

"Our Sea Nuts are another marine curiosity, having very much the appearance of horse chestnuts, but of various shapes and sizes. They contain a kernel, white and bitter to the taste; some are small and round like marbles; others oval with a handsome black or yellow band round the middle; others again with an impression like a stamp on one side. On showing some of them to a nursery man near London he pronounced them to be South American, all diadelphous and siliquosus. The largest, a Hymenaea, a forest tree, with the fruit enclosed in pods about two feet long and six or eight inches broad."

From the context it would appear that these Sea Nuts were found on the beach somewhere between Rynville and the southern shore of the Killery, and the descriptions given are precise enough to make the following identifications probable :—*Guilandina Bonducella*, the Grey Nikar[2] ("small and round like marbles"); *Mucuna* sp., the Horse Eye Bean[3] of Sloane's "Jamaica" ("oval with a handsome black or yellow band round the middle"); *Ipomoea tuberosa* ("with an impression like a stamp on one side"); and *Entada scandens* ("the largest . . . with the fruit enclosed in pods about two feet long"). The last of these is a woody climber which ascends lofty forest trees,[4]

[1] Longmans, Hurst, Reeves, & Co. London, 1825.
[2] Sloane's Cat. Pl. Jamaica, pp. 144–145.
[3] *Ibid.*, pp. 68–69.
[4] "Plants, Seeds, and Currents," pp. 140–141.

where its huge pods may easily be mistaken for the fruit of the tree which supports the climber. So far as Dr. Guppy can discover, there are no records of the stranding of Hymenaea seeds on the European shores, although one species, *H. Courbaril*, is native and widespread in the West Indies and along the neighbouring mainland shores of Central and South America.

For almost three-quarters of a century literature appears to remain a blank on the subject of Irish drift seeds. In 1897 the "Irish Naturalist" (vol. vi. page 113), in its report of the Dublin Field Club meeting of February 9th of that year, records the exhibition by Professor Johnson of specimens of a drift seed, *Mucuna urens*, picked up on the shore of Kilkee, Co. Clare, and sent to him for identification. Two years later Mrs. Emily M. Tatlow records in the same journal (vol. viii. page 236), the finding by her of seeds of *Entada scandens* and *Caesalpinia Bonducella*[1] on the Donegal coast at Narin, the seeds having been identified by Professor Johnson.

The last record of Irish drift seeds appears in 1917 in Dr. H. B. Guppy's "Plants, Seeds and Currents in the West Indies and the Azores," already referred to. On page 31, in a chapter dealing with "West Indian Drift on European Shores" he records the finding by the Rev. S. O'Connell in a cave at Kilkee, Co. Clare, of two drift seeds, *Entada scandens* and *Mucuna urens*, which were sent for identification to Miss Knowles, of our National Museum. The finding of an Entada bean by Miss Knowles herself at White Park Bay, Co. Antrim, is also recorded on the same page.

To sum up this historical survey, a careful search through a large body of literature has established the occurrence on our Atlantic coasts of four species of tropical drift seeds *Entada scandens*, *Mucuna urens*, *Guilandina Bonduc*, and *G. Bonducella*, all conclusively identified, and suggested the probability of the occurrence of the fifth, *Ipomoea tuberosa*.

Seeing that our Atlantic coasts are no less favourably situated for the reception of oceanic drift than the west coast of Scotland, where the stranding of nine distinct species of tropical seeds or fruits had been placed on record,[2] it was obvious either that the western beaches of Ireland had been insufficiently explored or that the results of such exploration had not been fully published. So the present writer entered on a course of correspondence with residents on our Atlantic coasts, and in other ways endeavoured to arouse interest in a subject which had not hitherto received a proper share of attention. It soon appeared that one of the seeds, the conspicuous bean of *Entada scandens*, was quite well known along our west and north-west coasts, though specimens

[1] A synonym for *Guilandina Bonducella*.

[2] See Dr. Guppy's "Plants, Seeds, and Currents," pp. 26–27.

were not often forthcoming. Other less conspicuous seeds have been noticed, too, but the descriptions given were too vague in the absence of specimens to permit of even conjectural identification. In the case of one correspondent, however, Miss M. Delap, of Valentia Island, Co. Kerry, well known for her studies in the development of the Medusae, the results obtained were most satisfactory. She kindly placed at my disposal two distinct sets of drift seeds, one of six examples collected on various dates up to 1870 on the beaches of Maghery and off Rutland Island, in West Donegal; the other of seven examples collected by her and her sisters on the shores of Valentia Harbour between 1876 and 1916. These collections included no less than five distinct species, of which three, *Entada scandens*, *Guilandina Bonducella*, and *Mucuna* (*altissima* ?), had been found both in Kerry and Donegal, and two, *Dioclea reflexa* and *Ipomoea tuberosa*, in Donegal only. It will be seen that Miss Delap's collections add three species, *Mucuna* (*altissima* ?), *Dioclea reflexa*, and *Ipomoea tuberosa*, to the Irish drift seeds previously recorded. The third of these, *Ipomoea tuberosa*, was probably found on the Galway coast, without being identified, as early as 1823.

From another correspondent, the late Rev. W. Spotswood Green, C.B., of West Cove, Caherdaniel, Co. Kerry, retired Chief Inspector of Irish Fisheries, I have received welcome aid as well as keen disappointment. Writing to me on the 1st March, 1917, he says:—"At various times I have picked up palm nuts of various species, fronds of palms and pieces of bamboo ... I have moved house so often that such things as I had collected were periodically abandoned." These abandoned palm nuts and other drift objects collected by a scientific observer who had unrivalled opportunities for inspecting our Atlantic coasts and interviewing west-coast fishermen, would certainly, if preserved, have made important additions to our knowledge of Irish tropical drift. Although Mr. Green could show me no specimens of his own gathering, he kindly undertook to arouse interest in the matter amongst his friends and neighbours. One of these was Mr. Daniel O'Connell, D.L., of Derrynane Abbey, and from him I received through Mr. Green on the 8th March, 1917, two specimens—one of *Entada scandens*, the other of *Mucuna urens*, both found some years previously on the strand at Derrynane. In 1916 the Entada seeds had been found again on the same strand, where at one time they came in in considerable numbers and in a germinable condition, as a friend of Miss O'Connell's had sprouted and grown them in a greenhouse. These Entada beans Mr. O'Connell had at once recognized when cast up on the Derrynane beach, as he had seen them at Barbadoes in the West Indies when serving in the Navy in his young days.

From the head of Galway Bay, Miss Matilda Redington, of Kilcornan,

Oranmore, kindly sent me in the same month, March, 1917, three other drift seeds—two of Entada, and one of the larger Mucuna (*M. altissima* ?), which had formed part of a collection of curios made by an old man living by the seashore in that neighbourhood. These seeds, she had little doubt, were found stranded there. From the Mayo coast I had received in February of the same year, from my friend Miss Amy Warren (a keen student of the Marine Mollusca of the district), another bean of Entada found stranded on the shore of Bartra Island, Killala Bay, about the year 1890. More interesting still was Miss Warren's positive identification as a constituent of the drift found by her on the Bartra strand of the characteristic fruit of *Sucoglottis amazonica*, a native of the Amazon and Orinoco estuaries. Unfortunately, she had not preserved specimens; but, on showing her the excellent photographic reproduction of the fruit given in the frontispiece of Dr. Guppy's "Plants, Seeds, and Currents," she at once recognized it.

In July of the same year Mr. H. Richards of Barnagh, Belmullet, Co. Mayo, sent me another Entada bean from the shore of the Mullet, where he told me the bean was at times cast up in considerable numbers. He added that some of the old people there believe the Sea Nuts to be good for the liver when ground up and boiled. Professor J. Mangan kindly sent me for inspection still another Entada bean, deposited in the Museum of University College, Galway, by the Rev. William Allman, M.D., who appears to have found it on the beach near Horn Head, Donegal, many years ago. And finally, to conclude the long series of records and reports referring to this conspicuous tropical sea-waif, Mr. T. J. Westropp, President of the Royal Society of Antiquaries of Ireland, wrote to tell me that he had heard of nuts of a rich, reddish-chestnut colour being washed up on the beach at Dunbeg, Co. Clare, some time before 1875, the description here pointing evidently to the Entada bean; while Mr. E. W. L. Holt, the present Chief Inspector of Irish Fisheries, informed me that he had similar beans, making part of a collection of alleged antiquities bought by him from an old women at Tawin, Galway Bay, where they had probably been found on the shore. A correspondence with Mr. W. E. Hart of Kilderry, Lough Foyle, like my previous correspondence with the Rev. W. S. Green, brought me keen disappointment, as his letters assuring me that Sea Beans of three different kinds were found on the shores of Donegal, Derry, and Antrim, added that specimens which he had kept in the house at one time had vanished "into the limbo of some spring cleaning."

The naming of the various specimens received from correspondents was much facilitated by the set of West Indian drift seeds presented to our National Museum by Dr. Guppy in 1915, when he endeavoured, without success, to arouse Irish interest in this subject. Though not included in this

West Indian set, *Ipomoea tuberosa* was easily identified from the plates and description given by Dr. Hemsley in the "Annals of Botany" for 1892 (vol. vi, p. 369), where he for the first time determined the species from a specimen found on the shore of North Uist in the Hebrides. As for the Mucuna species, marked with a query, the seed in this case is one which differs in form and size from the seed of *M. urens*. This large seed Dr. Guppy finds to be much more frequent in the drift of the Scottish west coast and on the West Indian beaches than the seed of *M. urens*, and he is inclined to assign it, though not with certainty, to *M. altissima* of De Candolle.

The results of this correspondence and of the preceding literary survey are set out in the following table in such a way as to show the comparative frequency of the occurrence of the various tropical drift seeds and fruits on our Irish Atlantic coasts. The county headings to the columns show the position of the beaches on which the specimens were found:—

	Kerry.	Clare.	Galway.	Mayo.	Donegal.	Antrim.
Entada scandens, . .	×	×	×	×	×	×
Mucuna urens, . .	×	×	—	—	—	—
M. (*altissima*?), . .	×	—	×	—	—	—
Dioclea reflexa, . .	—	—	—	—	×	—
Ipomoea tuberosa, . .	—	—	×	—	×	—
Saccoglottis amazonica, .	—	—	—	×	—	—
Guilandina Bonducella, .	×	—	—	—	×	—
G. Bonduc, . .	West coast.	County unknown.				

All of these seeds and fruits, with the exception perhaps of Saccoglottis, belong to species either native or fully naturalized in the West Indies; all are more or less frequent there in beach drift, and all are highly buoyant, several of them having been experimentally proved by Dr. Guppy to be capable of floating for upwards of twelve months. As a constituent of the Irish drift, *Entada scandens* comes easily first both in extension of range and in frequency of occurrence. The published records taken together with reports received from correspondents show that this conspicuous seed has been gathered on the Irish western coasts no less than fifteen times, and occasionally in considerable quantity, at dates ranging from 1696 to 1916, or for more than two centuries.

2. The Origin of the Irish Tropical Drift.

The stranding of tropical seeds and fruits on the Irish Atlantic coasts in considerable variety, and over a long series of years, having been established beyond all doubt by the evidence just given, the question arises—by what means did they reach our shores? Were they introduced by human agency, direct or indirect? or was their transport over some 4000 miles of ocean effected solely by currents and drifts.

Taking first the hypothesis of human agency, it must be admitted that some of the seeds, notably those of Entada and Guilandina, are objects of curiosity, and are not infrequently collected by travellers and sailors, so that their presence, at least in small quantity, on board of vessels engaged in the West Indian and Brazil trades may be assumed. Moreover, these particular seeds, as well as the seeds of Mucuna, were at one time articles of commerce, for use either as drugs or in the arts. Thus Sloane, speaking of Entada in the first volume of his "Natural History of Jamaica," 1707, tells us that the bean is a drug, "and, therefore, merchandise," and that the "mealy part, being taken out at the hilus, they are tipt with silver, and made into snuff-boxes." In the same volume he tells us that the Horse-Eye Beans (Mucuna) are made into coat-buttons, and sometimes tipped with silver. Again, in the second volume of the same work (1725), speaking of the hard polished seeds of *Guilandina Bonducella*, called the Ash-coloured Nickar in Jamaica, from its resemblance to "a Nickar,[1] such as boys play withal," he says the seeds are brought "very plentifully into Europe for making buttons." Charles de l'Ecluse (Clusius), the famous scholar and botanist, describing these seeds in 1605,[2] says that hardly a ship comes back from Africa, America, or other of the warmer countries, but brings home these nuts. Their medical virtues are set out at great length by the Italian botanist, Giovanni Pona, in his description of Monte Baldo, published at Venice in 1617. Here they are said to be an antidote against all poisons, a cure for epilepsy, for twisting of the mouth (*tortura della bocca*), for scorpion bite, and for [illegible] fevers; and when worn by children assure them against ill-fortune (*portato a dosso da' fanciulli gli preserva da mali eventi*).[3] As for

[1] A provincial word for the marble or "taw" which boys "nick" or propel by a fillip of the upper thumb-joint in the game of marbles.

[2] "Exoticorum Libri decem," Lib. iii. cap. xv.

[3] I am indebted to the kindness of Mr. A. F. Wilmott of the British Museum for a transcript of this passage (see Appendix B for original text). The reputation of the nut has travelled with it to the Scotch Hebrides. Martin, in his "Western Islands," tells us that it is hung about children's necks in the Harries as an amulet against witchcraft or the evil eye.

the virtues of Entada, it is placed by Dalechamp in 1587 amongst the *Fabae purgatrices*, and *Ipomoea tuberosa* appears in Oviedo in 1526[1] under the Spanish name *Avellana purgativa*.

We may then assume the presence on board ships trading between the Western Tropics and the British Isles of at least four of the Irish drift seeds, and an occasional wreck amongst such vessels off our Atlantic coasts might account for the stranding of these seeds on some of the beaches from Donegal to Kerry. Such a view as this has been suggested or expressed, not merely by ignorant cavillers, but by men of science. Thus Lobel in 1570 considered the stranding of foreign beans on the Cornish coast as all the more wonderful because no shipwreck was known to have occurred on the spot. Again, John Ray, the father of English botany, whose fame is perpetuated by the well-known Ray Society, when written to by Hans Sloane in 1696 for his opinion as to the origin of the Scottish drift seeds then engaging Sloane's attention, replied:—"It is very unlikely to me that they should be brought so far by any current of the sea. I should rather think they came from vessels cast away by shipwreck near these parts."[2] John Flygare, a pupil of Linnaeus, in a paper on Plant Colonies, read at Upsala in 1765, discussing Gunner's account, published in the same year,[3] of the stranding of American seeds on the Norwegian coast, says that no one yet knows how these seeds are carried by the ocean and stranded with vitality so unimpaired that they grow when sown.[4] Three years later Henry Tonning, another pupil of Linnaeus, in a paper on Norwegian Rarities, read at Upsala, makes a further reference to Gunner's drift seeds. These, he says, reach Norway either by the ocean, which offers a way of transport from America, or sometimes, though more rarely, by shipwreck. He proposed to the whole learned world (*a toto literato orbe*) the problem of how these seeds, indigenous in South America, could be carried by sea to Norway, since they do not float. "They are so recent that they grow when planted, yet come in plenty year after year." (*Cum non natent, cum adeo recentia sint ut germinent, et quotannis adveniant?*) The problem, as so stated, is indeed fit to baffle the whole learned world. But Tonning was wrong in his premises; for most of Gunner's seeds do float.

Thomas Pennant, the acute author of "British Zoology," may be taken as

[1] "De la Natural Hystoria de las Indias." Toledo, 1526.

[2] "Correspondence of John Ray." Ray Society, 1848, pp. 306–7.

[3] Trondhjemske Selskabs Skrifter, vol. iii, 1765.

[4] *Oceanus modo nondum cuiquam cognito semina Cassiae Fistulae, Anacardi occidentalis Mimosae scandentes et Cocos nuciferae ad littora usque Norvegiae volvit, eaque, quod miraberis, adeo vegeta ut terrae mandata germinent ac crescant.* "Amoenit. Academ.," Tom. ii, supp. cli.

our last exponent of the sceptical attitude towards the Gulf Stream or ocean current theory. When travelling in the Hebrides in 1772 he was presented in the Island of Islay with a set of Molucco Beans found stranded on the shore there. Having mentioned the general belief that the seeds were carried by currents from the West Indies, he proceeds:—"I was for resolving the phenomena into shipwrecks, and supposing that they might have been flung on these coasts out of some unhappy vessels, but this solution of mine is absolutely denied."[1]

It might be further urged in favour of the human agency hypothesis that no one has ever seen these drift seeds in mid-ocean, *rari nantes in gurgite vasto*, on their 4,000 miles voyage across the Atlantic from the western tropics to the shores of Europe, and that scientific authorities have maintained that the results of oceanic investigations carried on of late years show that the Gulf Stream, so far from washing the European shores, ceases to be recognizable as a distinct current in mid-Atlantic at about 30° of west longitude.

This is the case for human agency put as strongly as possible. What are its weak points, and what is the evidence in favour of the competing oceanic hypothesis? First of all it should be noted that although some of the tropical seeds found in our Irish drift were formerly used in medicine or in the arts, they have long since ceased to be so used, and consequently are not now to be found on board ship in quantity as articles of merchandise. And even were they so used at present the frequency of their occurrence, not only on our Atlantic beaches, but over a wide stretch of the western shores of Europe, could not reasonably be attributed to such an occasional cause as shipwreck. The seeds have been found stranded all along the Norwegian coast up to the North Cape. Some, indeed, have made their way into the Arctic regions, remote from any trade routes. For instance, Mack in his circumnavigation of Nova Zembla in 1871 found a bean of *Entada scandens* off the north-west coast in north latitude 76° 10', on one of the islands known to the Norwegian sealers and whalers as the Gulf Stream Islands (Golfströmsöarna).[2] Torrell, during the Swedish Polar Expedition of 1861, found another bean of the same species on the north coast of Spitzbergen, and Nathorst in 1871 found a seed of *Guilandina Bonduc* stranded at Advent Bay on the west coast of the same island.[3] Even the remotest oceanic islands receive these tropical

[1] "A Tour in Scotland and Voyage to the Hebrides." 4th ed. Dublin, 1775, p. 232.
[2] "Petermann's Mittheilungen," 1872, p. 375.
[3] "Om Drifveden in Norra Ishafvet," af Fredik Ingvarson. Kongl. Svenska Vetensk. Handl. Band 37.
[4] *Ibid.*

waifs, though not always by the same currents and drift as waft them to the shores of Europe. Seeds of Guilandina have been stranded on St. Helena, on the Bermudas, on the Azores, and even on the shores of the remote and inhospitable Tristan d'Acunha.[1]

Again, the drift of our Irish beaches is not confined to these tropical seeds; for the same beaches that yield them yield also from time to time such pelagic organisms as Salpa, Velella, Ianthina, and Physalia, the Portuguese Man-of-War. Quite frequently, after spells of westerly winds, the Blue Ocean Snail, Ianthina, and the Velella are wafted to our western shores from Kerry to Donegal. I myself have watched a fleet of Velella (*V. spirans*) sail in with the tide on the shores of Clare Island in July, 1909. Miss Warren has found both Velella and Physalia stranded on the beach of Bartra Island, Killala Bay; and Miss Delap tells me that she has taken several living Physalias at Valentia Harbour towards the end of October, 1916. Here, too, she found cast up on the shore many floats of the Gulf Weed, *Sargassum baccíferum*, encrusted with a Polyzoon, no doubt the white Membranipora with which Moseley during the Challenger voyage found these floats so conspicuously overgrown in the Sargasso Sea.[2] A recent Danish writer on the Gulf Weed, F. Börgesen, tells us that he has had this Membranipora identified as *M. tuberculata* Busk from specimens encrusting Sargassum floats which he himself gathered in the Sargasso Sea. The very same species, he adds, is found investing the floats of Linné's original type specimen of the Gulf Weed in the possession of the Linnean Society.[3] Now none of these oceanic waifs, all of them inhabitants of warmer seas, are objects of trade; they are all most certainly wafted to our Atlantic beaches by natural agencies, and, applying the maxim *noscitur a sociis*, the character of the seed-drift may be known by the company it keeps. The stranding of the seeds, of the pelagic animals, and of the Gulf Weed floats makes but a single phenomenon, and is the effect of one and the same agency or chain of agencies.

As for the objections that no one has ever seen a drift seed crossing the Atlantic *en route* from the West Indies to the shores of Europe, and that the Gulf Stream as a current cannot be recognized farther eastward than

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[1] H. N. Moseley: "Notes of a Naturalist on the Voyage of the Challenger." 1892, p. 15.

[2] "Numbers of the detached air vessels of the weed are to be seen floating about amongst the living weed-beds coated entirely with the white Membranipora, and they look at first like small globular pelagic animals." H. N. Mosely: "Notes of a Naturalist on the Voyage of the Challenger." 1892, p. 15.

[3] "The species of Sargassum found along the coast of the Danish West Indies, with Remarks upon the Floating Forms of the Sargasso Sea." Kjöbenhavn, 1914. I am indebted to Mr. R. Lloyd Praeger for a reference to this interesting paper.

the 30th meridian of west longitude, there is ample proof that floating objects do somehow make the passage. For instance, a vessel abandoned off Baltimore in March, 1888, was found ten months later stranded in the Hebrides about 3,200 miles to the eastward.[1] During this passage the derelict was observed at intermediate points, and for the greater part of its course was water-logged, with the decks awash. One of the earliest of many similar instances is that given by Pennant, who tells us that the mast of the Tilbury man-of-war, burnt in Jamaica, was found stranded on the west coast of Scotland.[2] Again, numerous test-bottles and floats thrown overboard at various points in the Atlantic have been picked up on the western shores of Europe, several of them on the west coast of Ireland. An early instance of this bottle drift is given by Rennel in his work on the Atlantic currents, where he records the discovery off the Island of Aran in Donegal on the 20th May, 1820, of a bottle thrown overboard, 300 miles south-east of Cape Cod, on the 20th June, 1819.[3]

How these floating objects make their passage from mid-Atlantic to the European shores is not quite clear. A wide-spread drift or slow translation of warm water, effected at a rate which has been estimated at about four miles a day, sets north-eastward from mid-Atlantic towards the European shores, and, passing along the Norwegian coast, penetrates into the Arctic regions as far as the northern extremity of Nova Zembla. Throughout its course this great drift, the European Stream, as it has been called, maintains a temperature many degrees above that of the superincumbent air. Whether this slow drift be due to the pressure of the Gulf Stream, to the prevalence of the westerly winds known as the Anti-trades, or to a great oceanic circulation whereby the cold waters of the Polar seas are exchanged with the heated water of the Equatorial regions, or whether it be due to all of these causes combined, is still, and will probably long remain, matter for discussion. This much, however, seems clear, that in the Gulf Stream, supplemented by this drift and by spells of westerly winds, we have an agency fully competent to effect the transport of floating bodies across the 4,000 miles of ocean from the West Indies to the Atlantic shores of Ireland.

Further support to the hypothesis of natural transport by currents, drifts, and winds as opposed to introduction by human agency and shipwreck may be drawn from the fact that the tropical seeds and fruits under discussion have never, so far as I can discover, been recorded from the drift of the eastern shores of the British Isles. And, to conclude this train of cumulative evidence in favour

[1] "Plants, Seeds, and Currents," p. 473.
[2] "Voyage to the Hebrides," p. 232.
[3] "Investigation of the Currents of the Atlantic Ocean." 1882.

of natural transport, I may cite Gunnar Andersen, the well-known investigator of the early botanical history of Scandinavia, who in 1893 recorded the finding of the Entada bean in two distinct stations in the peat-bogs of Tjörn, an island which lies off the coast of the Skager-Rack in the Swedish lan or county of Bohus.[1] From the nature of these peat deposits and their comparatively small elevation above sea-level, he considers it probable that the beans had been carried thither at a time previous to the post-glacial subsidence in that region; and in subsequent papers he found in the occurrence of these tropical waifs proof that a branch of a warm ocean current had washed the coast of southern Sweden in the period known to geologists as the Littorina Age.[2] Whatever date may be assigned, in accordance with this view, to the deposition of these seeds in the peat of Tjörn Island, we may safely assume that it was long anterior to any trade intercourse between Scandinavia and the Tropics.[3]

The evidence in support of each of the two conflicting views as to the method of transport has now been set forth at full length; and few, I think, who weigh it will hesitate to give a verdict in favour of the natural method, of that co-operation of current, drift, and wind commonly, though, it would seem loosely and inaccurately, spoken of as the Gulf Stream. For those who accept as sufficient the alternative method of transport by human agency plus shipwreck the occurrence of tropical seeds on Irish sea beaches must remain a matter of indifference, since the interest which attaches to these ocean waifs is inseparable from the belief that they traverse vast ocean spaces, impelled by natural forces whose nature and origin still remain largely mysterious. The evidence available appears to show that the agencies which effect this transport are not all of them persistent or subject to regular periodicity. The latter stage of the transit from mid-Atlantic, where the permanent Gulf Stream ceases to act, to the shores of west Ireland, or, at all events, a portion of that latter stage, is probably effected by irregularly recurrent spells of westerly or south-westerly winds, since the finding of the seeds on our Atlantic beaches occurs at irregular intervals.

It may be asked at what rate the passage of these waifs is effected from the West Indies or from the estuaries of the Amazon or Orinoco, whence not improbably some of them are derived *viâ* the Gulf of Mexico. Dr. Guppy has collected and discussed a large body of evidence on this point afforded by the behaviour of numerous experimental bottles and floats dropped overboard at

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[1] "Växtpaleontologiska undersökningar af Svenska torfmossar." Bihang Svensk. Vet. Akad. Handl. Bd. 18 Afd. iii, No. 8, sid. 40, 1893.

[2] "Svenska Växtverldens Historia." Bot. Jahrbücher, Bd. 22, p. 474, 1897.

[3] "Die Veranderungen des Klimas seit dem Maximum der letzten Eiszeit." Internat. Geol. Kongress, Stockholm, 1910, p. 293.

various points in the Atlantic by the United States Hydrographic Office, by the Prince of Monaco, and by many other investigators. An obvious and unavoidable source of error in such experiments lies in the uncertainty as to the length of time which may elapse between the stranding and the finding of a test bottle or float on the European shores. This source of error Dr. Guppy largely eliminates by selecting in the cases of recovered floats or bottles those intervals between throwing overboard and recovery which are the shorter by 20 or 25 per cent. An average of these shorter intervals he rightly considers as most closely approaching to the real duration of the passage, and so treating the considerable body of available material, he arrives at an average rate of $9\frac{1}{3}$ miles per day for the 4000 miles drift from the West Indies to the shores of Europe, or about fourteen months for the whole transit. The shortest passage recorded is one of about eleven months for the 4100 miles from Hispaniola to the Irish coast. In all cases the rate varies greatly in different sections of the route travelled, and, as Dr. Guppy points out, the system of oceanic currents is such as to make it possible for a West African Guinea Coast seed to reach the European shores by crossing the South Atlantic to Northern Brazil, and passing thence by the Carribean Sea and Gulf of Mexico into the Gulf Stream. This voyage of upwards of 10,000 miles would be accomplished in about two years; and as *Entada scandens* occurs in West Africa, it is possible, if by no means probable, that some of its many highly buoyant beans found stranded on the Irish coast may have once grown on the banks of the Niger or the Congo.

In most of the earlier records of the discovery of exotic drift seeds on the Scottish coast, for instance, in Mackenzie's account, already cited here (1675), in Sibbald's "Scotia Illustrata" (1684),[1] in Wallace's "Description of the Isles of Orkney" (1693), and in Martin's well-known "Description of the Western Islands," the seeds are spoken of as Molucco Beans, and this name, however originated, gave rise to the theory that the beans had travelled by sea from the famous Spice Islands of the eastern tropics. Mackenzie in his 1675 paper discusses in these words the probable path travelled by the beans:—

"Now, considering the scituation [*sic*] of these isles (Hebrides) with respect to any place where Molucco Beans grow, let the observers of Tydes consider what reciprocations must be imagined to adjust the Eastern and Western

[1] Pars secunda, p. 55.—*In littore Maris Deucaledonii & in Orcadibus cum Alga Marina inveniuntur Phaseoli Molucani & Nux Indica ex qua Pyxides pro Pulvere sternuatoris parant.* In this passage it will be seen that Entada is called an Indian Nut, while the name Molucco Beans is applied to other sea-borne seeds, probably to those of Guilandina.

constant currents of the Main with the wafting of these beans on places that lie so far out of the road of any of the direct Tydes. And if they grow only about the Molucco Isles, or in no place on this side of the Equator, it would seem more probable that they came by the Northern passage than in any other way. And their freshness in the kernel seems rather to have been kept in the cold conservatory than in the warm baths of the other progress."

It will be seen that the idea of a northern, that is to say, a north-east passage, from the East Indies was suggested to Mackenzie by the name Molucco Beans used in the Hebrides, and obviously indicating a belief that the beans had originated in the Moluccos. Sloane, in his "Voyage to Jamaica," 1725 (vol. ii, p. 41), erroneously inverts the mental process when he says that the seeds "are called Moluccan Beans by the inhabitants [of N.W. Scotland], they supposing them to have come from these islands by an imaginary north-east passage." That rumours of the discovery of a north-east passage to the East Indies were current long before the date of Mackenzie's paper is shown by a Spanish report brought to Lisbon from England in 1587 by Francis de Valverde, of San Lucar, while the Armada was being fitted out. This report, as published by the Spanish author Duro in his excellent work on the Armada, shows that Valverde, who had been captured off Cape St. Vincent, on board of a ship homeward bound from New Spain, and kept prisoner many months in England, advised his Government that it was quite openly said in England that they (the English) had discovered a navigable way to the Moluccos round by the North, and that this would be most inconvenient for the service of His Majesty (Philip II).[1]

How the seeds came to get the name Molucco Beans is a mystery which even Dr. Guppy's erudition has failed to unravel. I can only make the suggestion that the Portuguese name, *Fava de Malaqua*, Malacca Bean, applied to the kidney-shaped nut or seed of Anacardium, which, in form and colour, as described by the old herbalists, resembles the Entada Bean, was somehow transferred to the latter, and then by an easy corruption changed to Molucco Bean. This Portuguese name for Anacardium is given in Dalechamp's "Historia Generalis Plantarum" of 1587, and re-appears in 1640 in a much better known work, "Theatrum Botanicum," in the section

[1] "La Armada Invencible," 1884–85, vol. ii, p. 512. Documentos no. 86—"Que en Inglaterra se decia mui publicamente que habian descubierto la navegacion de las Moluccas por detras del Norte, y que siendo asi es de gran inconveniente para servicio de S.M." This long-desired passage, so ice-bound as to be useless for trade purposes, was not finally accomplished until 1879, when Nordenskiold's famous Swedish circumnavigation of Europe and Asia was effected in the ship Vega. See Vega's Färd Kring Asien och Europa. Stockholm, 1880-81.

on "Strange and Outlandish Plants." The Anacardium seed is amongst those mentioned by Gunner in 1765, and afterwards referred to by Flygare and Tonning, as having been stranded on the Norwegian coast.

Alongside the wide-spread popular belief in the exotic origin of these drift seeds there existed in certain quarters a notion that they were native products, fruits of the mysterious and inexhaustible fertility of the sea. As we have seen from Sir George Mackenzie's paper of 1675, the islanders of the Lewes believed the drift beans to come from the Sea-Tangle or Laminaria, and Moseley tells us that in the Bermudas and Tristan d'Acunha the sea beans found there are supposed to grow at the bottom of the sea.[1] But the most interesting account of such a belief, and one that appears to have eluded the notice of previous inquirers, is given by Clusius in the tenth book of his "Exotici" of 1605. Speaking of the Entada Bean, he shows that the men of the Faroes held a belief similar to that of the Lewes islanders at least seventy years earlier than Mackenzie's record. The passage, which occurs at page 336 of Clusius, may be thus rendered:—

"A most learned friend of mine wrote to me to say that the Norwegians were altogether persuaded these were Sea Beans, and that they grew up from deep water amongst sea-weeds in the Islands of the Faroes, so that the very cods that held them were brought up to view as they fabled. But in truth these cods, for I have seen one that he sent me, were nothing other than the egg-cases of the Ray fish.[2] From the shape of these beans some call them Sea Kidneys, others Lucky Stones, because they believe that if one possessed them they would fend off calamity from his house or enchantments, and I know not what, of hurt or damage from his cattle."[3]

Contrary to expectation, I have not been able to discover in Ireland any current beliefs as to the occult virtues of the Sea Beans similar to those found prevalent by Martin in the Hebrides when he wrote his "Description" in 1703. The only literary reference to such beliefs as existent in Ireland which I can find occurs in "Letters from the Irish Highlands of Cunnemarra," already quoted from, where the writer tells us that the "unlearned natives of Cunnemarra have found a fanciful use for these nuts by laying them under the pillows of their straw beds as a charm against the nocturnal visits of the fairies." No doubt a fund of folk-lore still lingers round these mysterious sea-waifs in the minds of the wise women of our western coasts. Such lore, however, is not to be extracted without patient and skilful manipulation.

[1] "Notes of a Naturalist," 1892, p. 15.

[2] The familiar sea-shore objects known as Mermaid's Purses.

[3] For original text see Appendix C.

BOTANICAL CHARACTERISTICS OF THE IRISH SEA DRIFT.

To complete this account of our Irish tropical seed drift, it may be well to add a few details as to the nature and botanical history of its components. Of the eight species set out in the list given in the first section of this paper no less than six—*Entada scandens, Guilandina Bonduc, G. Bonducella, Mucuna urens, M. altissima*, and *Dioclea reflexa*—belong to the order Leguminosae, one of the largest divisions of the vegetable kingdom. The seventh species, *Ipomoea tuberosa*, is a member of an extensive genus of Convolvulaceae, and the eighth, *Saccoglottis amazonica*, belongs to the order Humiriaceae which is related to the Ericaceae or Heath family. All of these eight species produce highly buoyant seeds or fruits. These have been tested by Dr. Guppy in the course of his exhaustive experiments on the buoyancy of tropical drift fruits or seeds, and several of them have been found to float for upwards of twelve months. This buoyancy, he has shown, is not a constant character, but depends on variable factors, such as station, stage of development, presence of a vacant space between the cotyledons or, in the case of composite fruits, abortion of ovules. All of these seeds and fruits he has found to be more or less frequent or abundant in the beach drift of the West Indian Islands, amongst which they are freely dispersed by sea currents in a germinable condition, so that, with one exception, Saccoglottis, the species form a characteristic feature in the strand flora.

European knowledge of these exotic species began with a knowledge of their seeds, which the enthusiastic botanists of the late sixteenth and early seventeenth century eagerly collected, chiefly from Spanish and Portuguese seamen engaged in trade with the Guinea coast or the Spanish Main. Foremost amongst these enthusiasts was the scholarly Charles de l'Ecluse (Clusius), a native of L'Ecluse on the Sensée river in Artois, who in the course of an enterprising botanical exploration of Spain and Portugal in 1546 had a leg broken by a fall from his horse near Gibraltar, and was ever after condemned to the use of crutches. His botanical ardour was not quenched, however, for he continued his explorations and paid three visits to England, where he obtained exotic seeds and fruits from his London correspondents, James Garet, perfumer, and Hugh Morgan and John Rizzio,[1] apothecaries to Queen Elizabeth. Here, too, he contrived to interview Drake on his return from his famous circumnavigation of the globe, and to procure specimens of the much-prized

[1] I have failed to trace any relationship between this John Rizzio and the ill-fated David Rizzio, French Secretary to Mary Queen of Scots. In the "Calendar of State Papers, Elizabeth, Domestic," p. 448, two Italians settled in England, Justiniano and Francis Ritzo, are mentioned as executors of the will of Sir Horatio Palavicini.

Winter's Bark from the Straits of Magellan. Of most of the seeds and fruits obtained from these and other correspondents, he had drawings made which, along with his descriptions, were brought together and published in 1605, when the author was in his eightieth year, in his "*Exoticorum Libri Decem.*"

From certain passages in this work Clusius would seem to have anticipated by three centuries the seed-buoyancy experiments of Schimper and Dr. Guppy. Thus, on page 58, speaking of *Guilandina Bonduc*, he tells us that the seed is solid and of stony hardness, and that it sank in water (*in aqua subsidebat*), and of *G. Bonducella* he remarks that the seed is hard as stone, though it floats in water (*saxei duritie, licet in aquam supernataret*). Again, on page 95, he speaks of seeds of two different species sinking to the bottom when placed in water (*in aqua subsidens & imum petens*). What precise object Clusius may have had in thus testing his exotic seeds I have not been able to discover. There seem to be no grounds, however, for suspecting that he had in his mind a possible dispersal of seeds by ocean currents.

Entada scandens Benth.

This species of almost world-wide distribution in the tropics is a vigorous climber, which, as Sloane tells us in his "History of Jamaica," 1707, is found "creeping up the trees and covering their tops for many acres." The bent or twisted seedpods, amongst the largest known fruits of the kind, often measure up to six feet in length by four inches in breadth and enclose numerous seeds from two to two and a-half inches in diameter, of a rich mahogany colour, with hard, smooth surface, and varying in outline from reniform or kidney-shaped to cordiform or heart-shaped. Patrick Brown, a native of Mayo, in his "History of Jamaica," published in 1756, proposed for the plant the name *Gigalobium scandens*, suggested by its huge pods; Linnaeus named it *Mimosa scandens*; subsequently De Candolle, adopting for the genus Adanson's name Entada, called the plant *Entada gigalobium*; and, finally, Bentham gave it the name *Entada scandens*, by which it is now most generally known.

The seeds of this species appear to have been first brought to Europe from the New World. They are included amongst the *Fabae purgatrices* in a work on drugs, published at Seville in 1569 by Nicolas Monardes, a Spanish botanist and physician.[1] A Latin version of this Spanish treatise was produced by Clusius in 1574, and in this the seeds are figured and fully described. The plant is set down as a native of the Island of St. Thomas, and for this reason, and because the seed resembles the heart as it is usually figured, the

[1] "Historia Medicinal de las Cosas que se traen de nuestras Indias Occidentales que sirven en Medicina." Duas partidas. Sevilla, 1569.

bean, we are told, is known as St. Thomas's Heart.[1] The large bean sent me by Miss Warren from Killala Bay, as well as one of those found by Miss Delap on the beach of Valentia Island, is of this shape, though the reniform shape is much more common in the Irish specimens I have seen. This appears from Dr. Guppy's flotation experiments to be one of the most buoyant amongst

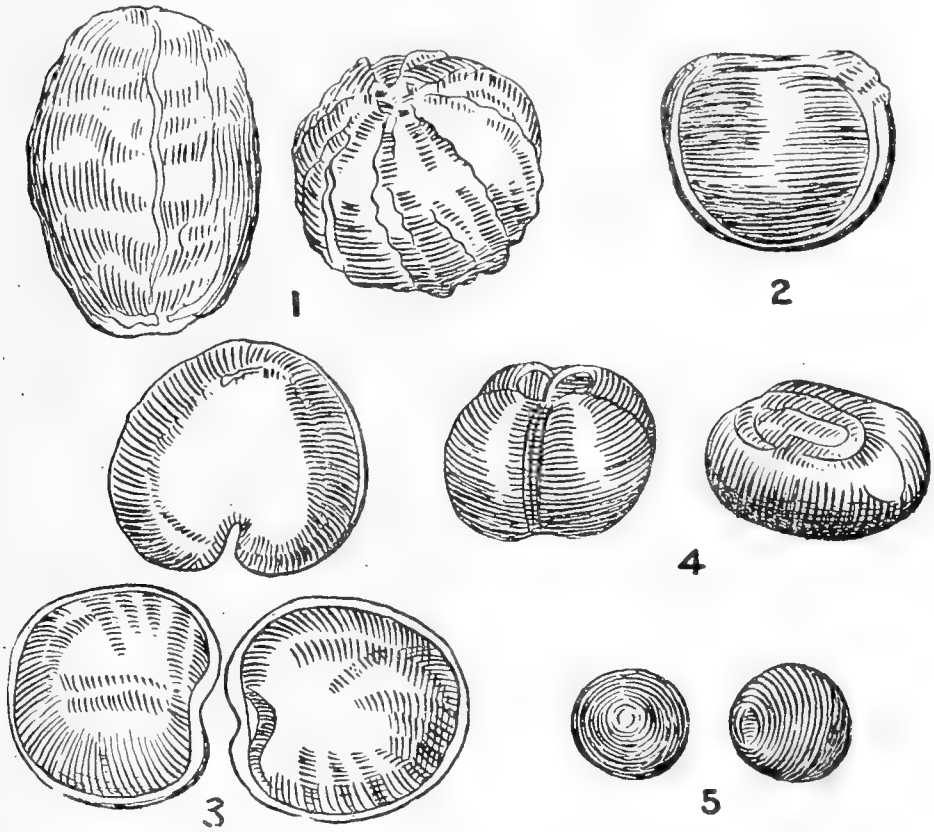


FIG. 1.—Early drawings of West Indian Drift Seeds.

1. *Saccoglottis amazonica*, from Clusius Exot., 1605, p. 45.
2. *Dioclea reflexa*, from J. Bauhin, Hist. Plant., tom. ii, 1651, p. 273.
3. *Entada scandens*, from Clusius' 2nd Latin Ed. of Monardes, 1574.
4. *Ipomoea tuberosa*, from Clusius Exot., pp. 40, 41.
5. *Guilandina Bonducella*, from Dalechamp, Hist. Plant., 1586, p. 1869.

European drift seeds, this buoyancy, as he points out, being derived from an internal cavity caused by the shrinkage of the cotyledons, unequal shrinkage in different seeds giving rise to varying degrees or complete absence of buoyancy. The dense, tough integument preserves the embryo throughout its

[1] *Nascitur in Insula D. Thomae dicta & cordis effigiam quale vulgo pingi solet imitatur; idcirco a quibusdã Cor D. Thomae nuncupatur.*

long sea passage of 4000 miles, so that plants have frequently been raised in greenhouses from seeds of this species found stranded on the shores of Europe. In frequency of occurrence and widespread dispersal as a drift seed on the western shores of Europe, Entada comes easily first. The records range from South Kerry to Spitzbergen.

Mucuna urens Medic. **M.** (**altissima** ?) DC.

Like *Entada scandens*, both of these species are climbers, *M. urens* being widely distributed in the tropics of both hemispheres, including the Pacific Islands; while *M. altissima* appears to be confined to the New World, where it occurs in the West Indies, Central America, and Brazil. Dr. Guppy has found the seeds of both species in the beach drift of the West Indian Islands, those of *M. urens* being much rarer there, as they are in the drift of the European shores, than those of *M. altissima*. The seeds of the two species are not easy to discriminate. Both are of rounded outline, more or less flattened; brown in colour, and almost completely surrounded by a broad, black, sharply defined band—the hilum or scar formed by the cord which attaches the seed to the seed-case. The seed of *M. urens* is the smaller, not exceeding an inch in diameter. It is more swollen or approaching to a globular form than the seed of *M. altissima*, which attains a diameter of an inch and a-half. As in *Entada*, the buoyancy of the seed is due to an inter-cotyledonary cavity.

The first mention of this genus I can find is in the Latin version of Monardes, published by Clusius in 1574. Here a figure of a young plant is given along with a few seeds, showing fairly well the characteristic broad hilum. This figure, as Clusius tells us, was drawn from a plant which he grew in Belgium from a seed brought from Pernambuco, and procured by him in Lisbon in 1564. He succeeded in growing this plant to a height of two cubits (about 3 feet 6 inches), but failed to flower it. A better figure of the seed is given by J. Bauhin in Vol. ii, p. 271, of his "Historia Plantarum," published in 1651. The generic name Mucuna is derived from the native Brazilian name, Macocua, under which the seeds were first introduced into Europe. It is not possible to determine to which of the two drift species of Mucuna the figures and descriptions of Clusius and Bauhin should be referred.

Guilandina Bonduc Linn. **G. Bonducella** Linn.

The distribution of both of these species is as wide as that of Entada and Mucuna, and the hard, round, shining seeds have attracted attention from early times. The Linnean specific name Bonduc, with its diminutive Bonducella, is derived from the Arabic word Bondog, signifying a necklace,

the seeds being made into necklaces and bracelets in the East. By modern systematists the genus Guilandina has been merged in Caesalpinia, under which name the species are now frequently spoken of. Dr. Guppy has shown that the buoyancy of the seeds is due to an internal cavity, usually intercotyledonary, as in Entada and Mucuna. The earliest plate of the seed which I can find is given at page 1859 of Dalechamp's "Historia Plantarum," 1586, where it is entered under the heading *Varii fructus peregrina Clusii*, and incorrectly named Nux Faufel, this name being properly applicable to the Areca nut, the fruit of what Gerard calls the "Drunken Date Tree." The seed figured is said to have been obtained by Clusius from John Rizzio, apothecary to Queen Elizabeth, while Clusius was on a visit to London in 1581, and is described as being smaller than a sparrow's egg, almost round, of stony hardness, and looking as if it had been turned in a lathe (*tanquam torno elaboratus*). The description is most accurate, for the stony test is encircled by faint parallel ridges suggesting the use of a lathe tool. In all but colour the seeds of both species are similar, those of *G. Bonduc* being yellow, those of *G. Bonducella* grey or leaden-coloured. The plants, however, are distinguishable by the size of the leaflets and by the presence or absence of foliaceous stipules. While *G. Bonducella* is widespread as a drift seed on the shores of western Europe, there are but two records of *G. Bonduc*, one for the Irish coast by Robert Brown in 1818, the other by Pennant for the Hebrides in 1774.

Dioclea reflexa Hook. f.

The seed of this leguminous tree-climber, which is widespread in the tropics of both hemispheres, appears to be of quite rare occurrence in the drift of the European coasts, though it is a common ingredient in the drift of the West Indian Islands. Dr. Guppy suggests that the infrequency of records for the European shores may be due to a failure to distinguish the seeds from those of Mucuna. He accepts but two records, one for the Orkneys, the other for the Shetlands; and in Ireland it is known only from a single station on the west Donegal coast, where, as already mentioned, it was found by Miss Delap along with Entada, Mucuna, Guilandina, and Ipomoea. The earliest figure and description of this seed which I can find are in J. Bauhin's "Historia Plantarum Universalis Nova," 1651, at page 273 of the second volume. The figure is good, showing the squarish outline of the seed; and in all points save the colour of the hilum the description which follows agrees closely enough with Miss Delap's specimen:—*Phaseolus Brasilianus totus niger splendens. Cortice obtectus est duro atque splendente . . . Hilus etiam totus niger, tres fructus partes ambit ipsoque fructu elatior est. Rotundus esset, nisi pars sessilis rotunditatem averet.* In Miss Delap's specimen

the hilum is brown not black. The buoyancy of this seed has been shown by Dr. Guppy to depend, not on the presence of an internal cavity, but on the intrinsic lightness of the kernel.

Ipomea tuberosa Linn.

As a drift object it is hard to say whether we have to deal with a seed or a fruit in the case of this species, which is a lofty climber, wide-spread in the West Indies and in the tropics of South America, Africa, and Asia. The fruit or seed presents as a hard glossy-black, polished object, depressed, globose, or slightly squarish in outline, about an inch in diameter, marked with four transverse grooves on one side and with a C-shaped or crescentic hilum on the other. Though normally a four-seeded fruit, often but one embryo is developed while the envelope retains its four-partite character. To this arrest of the normal growth of a portion of the embryos the high buoyancy of the one seed in the fruit is due. The seed or fruit is very well figured and described by Clusius[1] as one of six fruits received by him at various times from James Garet, a London apothecary and perfumer, who practised tulip-growing. Two figures are given by Clusius, one on page 41, showing the characteristic C-shaped hilum, the other on page 40 showing the quadripartite division of the fruit which he describes as apparently consisting of four nuts joined together (*veluti ex quatuor avellanis simul connexis constans*), and so hard in texture as almost to resist the file. Clusius believes the fruit to be identical with the *Dolichos* previously described by Ferdinand Oviedo in 1526.

Long known from the drift of the Scottish west coast, it was not until 1892 that the species was identified. As a constituent of the West Indian drift Dr. Guppy finds it to be quite rare, and on the European shores it is by no means so frequent or so wide-spread as Entada, Mucuna, and Guilandina. It is recorded with certainty only from the Hebrides, the Orkneys, and the Shetlands. To this range, Miss Delap's Donegal record gives a considerable extension.

Saccoglottis amazonica Mart.

This is the largest of the European drift fruits, and its origin is almost certainly the Amazon and Orinoco regions. As a drift fruit, Dr. Guppy finds it to be widespread in West Indian beaches, where it was observed by Sloane in Jamaica two centuries ago, and identified as one of the fruits cast up on the north-west islands of Scotland. Good figures of the fruit are given by Clusius at page 45 of his "Exotici," 1605. Here we are told

[1] "Exotici," lib. ii, cap. xvi.

that Jacob Plateau, hearing that Clusius was engaged in the preparation of his work on Exotics, sent him several fruits. Amongst them was this, which 290 years later was finally identified as Saccoglottis, and traced to its home in the Amazon basin.[1] It is described by Clusius as being two inches long by four inches in girth, marked into five segments by longitudinal ridges, the surface tubercolated with blister-like protuberances, which, when opened, were found to be empty. It is to these closed cavities, or resin cysts, that the high buoyancy of the fruit is due.

Saccoglottis is of infrequent occurrence on the beaches of western Europe. In addition to the Hebrides, the only records are those for the Devonshire coast, where it was picked up in 1887, and for the Mayo coast, where we have felt justified in accepting its occurrence on the evidence given by Miss Warren.

In concluding this account of our Irish tropical drift seeds it is my pleasing duty to have to acknowledge kind aid received in many ways from the following, in addition to those already mentioned:—Miss M. C. Knowles, of the Herbarium, National Museum; Mr. T. W. Lyster, Librarian of the National Library; Professor A. Henry, of Royal College of Science; Mr. R. W. Scully, author of the "Flora of the Co. Kerry"; Mr. R. Lloyd Praeger, of the National Library; and last, though by no means least, Dr. H. B. Guppy, of Salcombe, South Devon, whose sympathetic correspondence carried on with me during the progress of the work was most fruitful in suggestion.

APPENDIX.

(A) Dame Killigrew sends Sea-beans to Lobel from Cornwall. Lobel, *Adversaria*, Londini, 1570, 395.

Permultas accepimus à nauclerus fabas Phaseolosve ex Americae novo orbe, èque Hesperia Aphrica allatas, quae mixtae naturae videntur, sed propinquioris Phaseolo . . . sed alias perquam raras habemus nos munere lectissimae literata virtute et familia in Anglia illustri Heroinae Catherinae Killigreae quas ferunt repertas magna copiae ad Cornubiae littora & quod non parum mirum, eo loco nullum meminit ullus navem illisam, nullumve naufragium factum et tamen quotannis novae inveniuntur, partim fluitantes & partim effodiuntur immersae sabulis littoreis, quasi ut putant Cornubiensis maris Anglice accolae, secundis Austris aut Zephyris è nova mundo appulsae fuerant.

[1] "Nature," Nov. 21st, 1895. A Jamaica Drift Fruit, D. Morris.

(B) Giovanni Pena on the virtues of Bonduch Indiano (*Guilandina Bonduch*) "*Monte Baldo descritto* da Giovanni Pena, Veronese." In Venetia MDCXVII, pp. 22–33.

Questo frutto, per quanto l'Illustrissimo Contarini me ne scrisse, è venduto in Alessandria d' Egitto da' Turchi con nome di Bonduch, ascrivendole gran virtù; ed in particolare (come mi fu scritto dal Sig. Gio. Maria Danioto, nella cognitione della planta versatissimo) che portati adosso da' fanciulli gli preserva da mali eventi (Nel modo che Plinio scrive della Pietra Molochites, chiamandola *custodia infantium*); valere al morso de Scorpioni, toglie l'Emicranea ricevendolo in polve sottilissima per le narici, et sana la tortura della bocca; conferisce all'Epilessia, et la quantità sua esse il peso di due grani di Pepe; bevuto nel vino alla quantità di un cece, sanare il colico, la febre quartana, et resistere a tutti i Veneni: lequali virtù quanto di lui proprie siano non saprei dire, per non haverne veduto esperienza.

(C) The Färoe islanders believe the Sea Beans to be sea growth.—Clusius, "*Exotici*," 1605, p. 336.

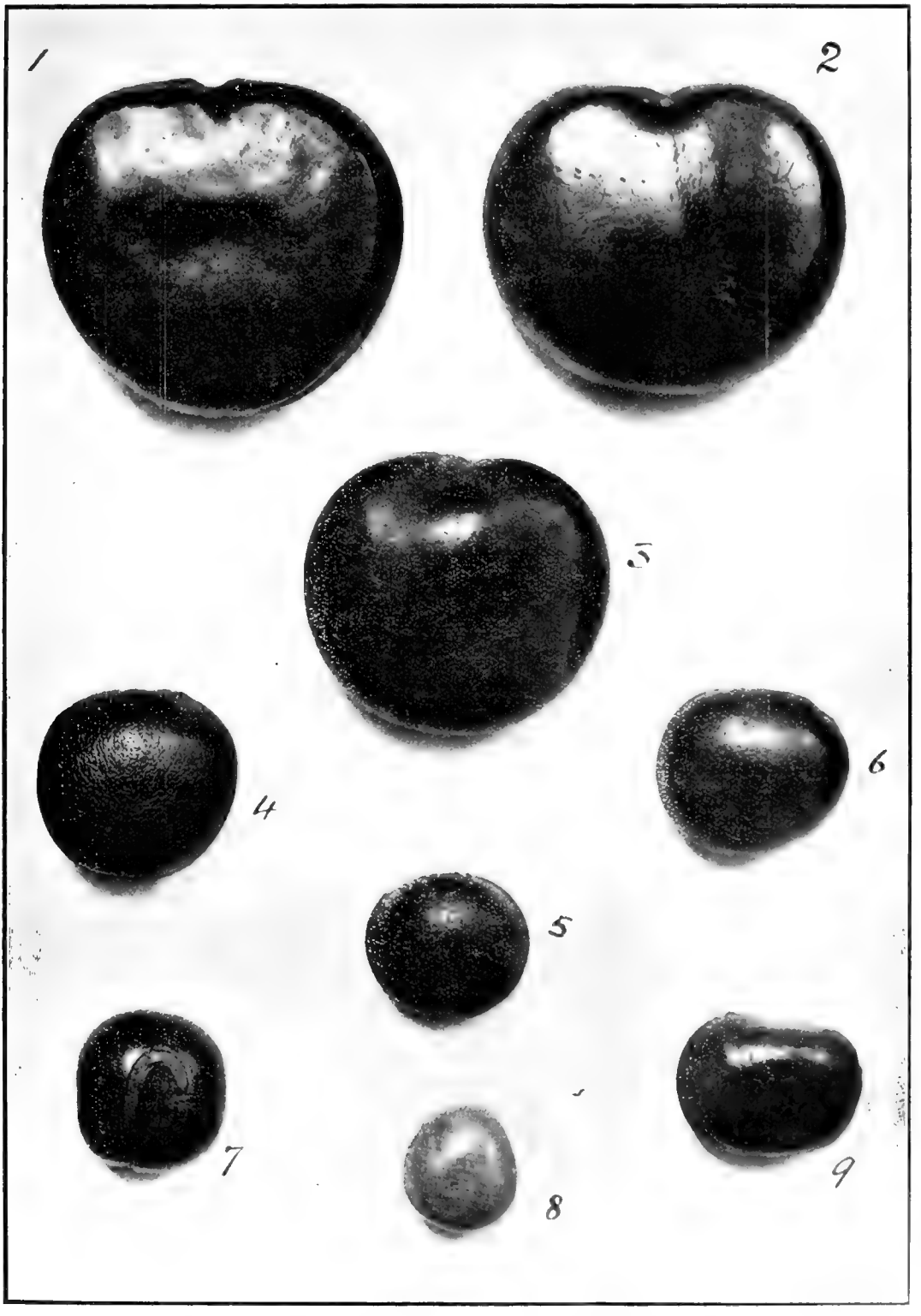
Ceterum silentio minime premendam existimavi opinionem quam Nortuagos de hoc phaseolo habere intelligebam quam istum *Aromatum Historia quintum* typu exprimeretur: illos enim prorsus sibi persuadere scribebat doctissimus vir mihi amicus marinum esse phaseolum atque adeo in Farris insulis nasci inter algam et ex profundo erui quin et folliculos ostendere quibus continere nugantur, quum tamen nihil aliud sint (nam unum quam mittebat conspexi) quam ovorum Raiae piscis putamina. Ipsa a forma Renes Marinos appellant, nonnulli etiam Bonae Sortis calculos, sive quod calamitatem a domo possessoris sive etiam quod incantamenta & nescio quam noxam ab heri pecore arcere vel propellere credantur.

EXPLANATION OF PLATE X.

TROPICAL DRIFT SEEDS FOUND CAST UP ON THE WEST COAST OF IRELAND.

SLIGHTLY REDUCED IN SIZE.

1. *Entada scandens*, Bartra Is., Killala Bay.
2. „ „ Maghery strand, Donegal.
3. „ „ Belmullet, Co. Mayo.
4 and 6. *Mucuna* (*altissima*?), Valentia Harbour.
5. *Mucuna urens*, Valentia Harbour.
7. *Ipomœa tuberosa*, Maghery strand.
8. *Guilandina Bonducella*, Maghery strand.
9. *Rhodea reflexa*, Maghery strand.



COLGAN.—TROPICAL DRIFT SEEDS ON IRISH ATLANTIC COASTS.

IV.

THE HISTORY OF THE DUNKELD HYBRID LARCH, *LARIX EUROLEPIS*, WITH NOTES ON OTHER HYBRID CONIFERS.

By AUGUSTINE HENRY, M.A., F.L.S.,

AND

MARGARET G. FLOOD, B.A.

PLATE XI.

Read June 23. Published September 25, 1919.

I.—Hybrid Conifers.

Instances of hybridisation between different species of conifers are not of common occurrence. The fact that species of the same genus seldom grow together in the wild state may explain the rarity of hybrids amongst conifers in natural surroundings; but it is difficult to account for their non-appearance in pineta, botanic gardens, and artificial plantations, where allied species often stand in close proximity, and cross-pollination would seem to be inevitable. Most of the recorded cases are confined to the two genera, Abies and Pinus; and scarcely any addition has been made to the short list[1] of hybrid conifers drawn up by Masters in 1901. It is probable, however, that hybridisation in conifers is more frequent than is supposed, and possibly widespread amongst the other genera. Hybrids often escape recognition, and if observed are apt to be classed with so-called "varieties" or "sports."

As an example of a hybrid conifer which has not yet been recognized in books as such, I may instance the puzzling hemlock spruce, *Tsuga Pattoniana* var. *Jeffreyi*, A. Henry.[2] This supposed variety is undoubtedly a hybrid between the two wild species, *Tsuga Pattoniana* and *Tsuga Albertiana*, and may now be named *Tsuga Jeffreyi*, A. Henry.

[1] In Journ. R. Hort. Soc. xxvi, 97 (1901).

[2] In Elwes and Henry, "Trees of Great Britain," ii, 231 (1907). Another name for this tree is *Tsuga Mertensiana*, var. *Jeffreyi*, Silva Tarouca, "Unsere Freiland. Nadelhölzer," 294 (1913). The hybrid differs from *T. Pattoniana* in having green and not bluish foliage, and in the leaves being serrulate and not entire in margin, with a groove on the upper surface continued to the rounded apex. It differs from *T. Albertiana* in the radial and not pectinate arrangement of the leaves, which, moreover, have broken stomatic lines on the upper surface, absent from the last-named species.

This extremely rare tree, of which there is a living specimen in Kew Gardens, was originally raised at Edinburgh from seed collected in 1851 by Jeffrey in British Columbia on Mount Baker, where the two species were observed growing together by Englemann in 1882.[1] *Tsuga Jeffreyi* has turned up again, after an interval of sixty years. There is now growing in Mr. M. Hornibrook's garden at Knapton, Abbeyleix, a young tree, identical with Jeffrey's plant, which was procured from Vancouver Island about four years ago. It was dug up as a wild seedling a few inches high in the mountains behind Cowichan Lake, where the two parent species probably intermix, as one is a characteristic tree of the lower altitudes of Vancouver Island, while the other is almost confined to the alpine zone.

II.—Hybrid Larches.

Hybrid trees, especially those of the first generation, are usually endowed with remarkable vigour, so that they not only produce timber rapidly and in great volume, but they also are to a considerable degree immune from serious attacks of insects or of fungoid disease. Hybridisation between the different larches is thus a subject of economic importance, as the genus yields excellent timber in a short term of years, provided the plantations remain in a healthy state. The species most cultivated, *Larix europaea*, is unfortunately very liable to disease.

Each of the dozen known species of larch is confined to a distinct territory, and natural hybrids have not been observed in the wild state. Three hybrid larches have, however, originated spontaneously in cultivation; and crossing has also been effected by artificial pollination.

1. *Larix pendula*.—One of the hybrid larches, *Larix pendula*, Salisbury, which puzzled botanists for over a hundred years, may now be briefly referred to. Its history was elucidated by Prof. A. Henry[2] in 1915. It originated as a single seedling about 1739; and the original tree, a first cross between *Larix europaea* and *Larix americana*, grew for many years at Mill Hill, near London, being ultimately cut down in 1800. This tree attracted much attention on account of its extraordinary vigour. Lambert, the great authority of his time on Conifers, said: "It was the finest and largest tree I have ever

[1] It was described accurately as regards the leaves and twigs by A. Murray, in Proc. R. Hort. Soc. iii, 205, fig. 1 (1863), under the name *Abies Pattoniana*, a misleading and untenable designation, as Jeffrey's plant is quite different from the alpine wild hemlock spruce, previously described under this name by Balfour in 1853. The hybrid is sometimes also wrongly called *Abies Hookeriana*, A. Murray, which is a synonym no longer in use, being a later name of the alpine wild species.

[2] In "Gardeners' Chronicle," 18th September, 1915, pp. 178–179, figs. 58–61, and 9th October, 1915, p. 234.

seen, bearing great quantities of cones with ripe seed annually." From its seed a good many descendants were obtained, some of which are still to be seen in parks and botanic gardens in Great Britain. The trees of the second and third generations differ amongst themselves in vigour, size, habit, bark, twigs, leaves, and cones. In fact, they show a range of variation that can only be explained as resulting from the diverse combinations of the distinctive characters of the two parent species. These peculiar larch trees were for a long time considered by foresters and botanists to be a second wild species in Eastern Canada, where, however, *Larix americana* is the sole indi genous larch. Of late years, they were erroneously identified with *Larix dahurica*, a native of Eastern Asia. The history and botanical characters of *Larix pendula* clearly establish its hybrid nature.

It is noteworthy that none of the trees of the second and third generations retains the remarkable vigour of the original first cross. In fact, they are as a rule inferior in growth to the European larch, one of the parents; but a good number show greater vigour than the other parent, the American larch.

The Russian botanist, Regel,[1] gives an interesting account of the remarkable differences in habit of the seedlings which he raised at St. Petersburg from the seed of *Larix pendula*. Some exhibited bizarre, prostrate, and pendulous forms. This is a striking example of mutations resulting from hybridity.

In *Larix pendula* only one tree of the first hybrid generation appears ever to have been produced. In the case, however, of the Dunkeld hybrid larch, as will be shown in the following pages, numerous first-cross individuals of great promise and vigour have been easily raised from seed. The seed is profusely produced by a few trees of one species, which are spontaneously cross-pollinated by trees of the other species in their vicinity. This abundant production of hybrid seed is a remarkable phenomenon.

2. *Larix Marschlinsi*, Coaz.[2] This hybrid larch came only under our notice a few days ago. Like the Dunkeld hybrid larch, it has arisen from a tree of *Larix leptolepis*, which happened to be fertilized by the pollen of another species, growing close by. The mother Japanese larch tree, which is now about thirty-seven years old, stands in the forest garden of Tscharnerholz, near Morat, in Switzerland. Seed of this, sown in 1901, produced young trees, which are now growing at Marschlins in the communal forest of Igis, in the Grisons canton. These seedlings are very vigorous, having attained,

[1] In "Gartenflora," xx, 102 (1871).

[2] In "Schweiz. Zeitschrift für Forstwesen," vol. lxviii, p. 12, figs. 3 and 4 (January, 1917).

when measured in 1917, 27 to 33 feet in height, with a girth of 24 to 26 ins. at one metre above the ground. They produced cones in 1916, which are unlike those of *L. leptolepis*. Dr. Coaz considered these trees to be the progeny of a cross between the Japanese larch and the European larch; but the real source of the pollen he leaves in doubt. In the photograph, reproduced with his description, of the mother Japanese larch tree at Tscharnerholz, there is standing near it a group of trees, which are said to be *Larix europaea*, var. *sibirica*; and it is very probable that the pollen came from these Siberian larches, which were thirty-five years old in 1917. It would seem, then, that *Larix Marschlinsi* is a cross between *L. leptolepis* and *L. sibirica*; but further investigation is required.

The reverse cross, *Larix sibirica* ♀ × *L. leptolepis* ♂ is said to have been produced artificially in Russia by V. Parashink, from an abstract[1] of whose paper the following is taken —"The Russian larch is very severely attacked by *Peziza Willkommii* and by *Coleophora laricella*, so as to render its cultivation inadvisable. The Japanese larch, on the contrary, is almost immune against fungi or insects; its growth is, however, less rapid (in Russia), and the quality of timber obtained from it more liable to decay. Is it possible, by cross-breeding, to combine in a single subject the valuable characters of the two types? With this object he fertilized specimens of the Russian larch (*L. sibirica*) with the pollen of the Japanese species. The hybrids of one year old can be seen in a plot of the experimental station at Nova Alexandria."

III.—The Dunkeld Hybrid Larch, Larix Eurolepis.

The "Dunkeld hybrid larch" is the name given by foresters to seedlings that have been repeatedly raised from the seed of certain Japanese larch trees (*Larix leptolepis*) ten in number,[2] which are growing near the road leading to the mansion at Dunkeld, Perthshire. These trees are fairly vigorous, being about 50 feet high in 1916, when they had attained thirty-one years old. Near them are growing numerous European larches (*Larix europaea*), from which pollen can easily be wafted by the wind; and cross-fertilization undoubtedly occurs. The seedlings of the ten trees differ considerably in appearance from ordinary Japanese larch, such as is raised in this country from seed imported from Japan.

[1] Internat. Bull. Agric. Intell., iii, p. 2201 (1912). Parashink, relying on the botanical name *L. europaea* var. *sibirica*, speaks of the Russian larch as the "European larch at the eastern end (Russia) of its distribution"; but it is a very distinct species, now always correctly named *Larix sibirica*.

[2] These ten trees were raised from seed imported from Japan in 1884, and sown in 1885. Cf. Trans. R. Scott. Arbor. Soc. iv, 273 (1898).

The oldest of the hybrid seedlings were planted out at Inver, near Dunkeld, in 1904, and were about 25 feet high when seen in 1916, being reputed to be then sixteen years old from seed. They are narrow, with upturned twigs at the ends of the ascending branches; and are strikingly different in habit from the wide-spreading true Japanese larch. Mr. D. Keir, the forester, in June, 1919, accurately measured the Inver hybrid larches as follows :—

	Height.	Girth at 5 feet from the ground.
No. 1. . .	27 feet.	18 inches.
„ 2. . .	28 „	18 „
„ 3. . .	27 „	20 „
„ 4. . .	26 „	20 „
„ 5. . .	39 „	21½ „

Five hybrids, planted at Ladywell High Park, in 1907, and three years younger from seed than the Inver trees, show much more even and better growth, being 30 to 33 feet in height and 17 inches in girth at 5 feet from the ground. About 100 acres of hybrid seedlings, all of which are very thriving, have been planted out on the Blair Athol and Dunkeld estates.

Several of the Dunkeld hybrid larches have borne cones with fertile seed, from which seedlings of the second generation have been raised.

At the Ladywell Nursery, Dunkeld, one could see in 1916 three beds of seedlings of different origin, all two years old, and under the same conditions of soil and treatment. These compared as follows :—

1. Hybrids of the first generation, raised from one of the ten *Larix leptolepis* trees, a very uniform crop of seedlings, 12 to 17 inches in height.

2. Hybrids of the second generation, raised from seed of one of the Inver hybrid trees. These averaged 12 inches high, and were very varied in size and appearance, suggesting Mendelian segregation.

3. Pure *Larix leptolepis*, raised from Japanese seed, a very uniform crop of seedlings, 6 to 8 inches high; or about half the size of the first cross.

We have obtained most of the material for the study of the Dunkeld hybrid larch from a plot[1] in the Buffalo Park plantation at Murthly, Perthshire, which contains 300 trees of the same origin as those at Inver. Planted

[1] This plot is described by John Murray, in Trans. R. Scott. Arbor. Soc. xxix, 152 (1915). Plate xv, accompanying this interesting article, shows the habit of the Dunkeld hybrid larch.

out in 1908, the trees in this plot averaged 29 feet in height and $13\frac{3}{4}$ inches in girth at breast-high when measured in August, 1916. This astonishing vigour of growth is very evident when comparison is made with an adjoining plantation of pure Japanese larch, the trees of which are considerably shorter, though they are two years older, having been planted in 1906. There seems to be no doubt that these first generation hybrids always exceed in vigour both the parent species.

All the specimens obtained from Dunkeld and Murthly seem to be uniform in their characters, indicating a first cross between two pure species. It is possible that some of the seed of the mother trees may not be always cross-pollinated, and in that case the resulting seedlings would be identical with *L. leptolepis*; but no instance of this came under our notice.

It is now proposed to apply[1] to the "hybrid Dunkeld larch," *Larix leptolepis* ♀ × *L. europaea* ♂, the name *Larix eurolepis*, A. Henry; and to give in the succeeding pages the results of a careful study of the material obligingly sent by Mr. A. Murray, forester at Murthly, and Mr. D. Keir, forester at Dunkeld.

Before giving a description of the hybrid larch, it is necessary first to state clearly and at considerable length how the two parent species plainly differ in their twigs, leaves, flowers, and cones; but it is convenient to postpone till later our account of the peculiar distinctions that are visible under the microscope in the sections of the leaves of the parent species and of the hybrid.

I. **Parent Species** (*a*) *Twigs.* In *Larix europaea* the twigs in their first year are glabrous, green, and without waxy bloom; becoming in the second year greyish-yellow with the tips of the pulvini tinted orange. Buds golden brown, not resinous; axillary buds not overlapped at the base by the apex of the subtending pulvinus; terminal buds surrounded by mucronate scales.

In *Larix leptolepis* the twigs in the first year are covered with a waxy bloom, and usually bear long brown hairs, either dense or scattered, but in a considerable proportion of individual trees entirely absent or cast early in the season. In the second year the twigs are red, brilliant in tint on the upper surface, duller on the surface directed towards the ground and in the shade. Buds reddish-brown, very resinous; axillary buds overlapped at the base by the raised apex of the subtending pulvinus; terminal buds surrounded with partly acute, partly mucronate scales.

[1] *Larix eurolepis*, A. Henry, hybrida nova inter *Laricem leptolepidem* et *Laricem europaeam*: arbor robusta alterius foliis hujus ramulis: bracteis florum femininarum roseis ut speciei europaeae, sed reflexis ut speciei japonicae: strobilis maturis etiam mediis, similibus speciei europaeae forma conica; squamis laxis, leviter reflexis: pedunculo flavo.

(*b*) *Leaves.* In all larches there are two sorts of leaves—(1) those arising singly in spiral order on the long shoots of the current season; and (2) those borne in clusters of thirty to sixty at the summit of the short shoots or spurs on the older twigs.

In *L. europaea* the leaves are green without any diffused bloom on their surface, and with few stomatic lines, and on that account are not glaucous in tint.

In *L. leptolepis* the leaves are distinctly glaucous, being covered on both surfaces with a diffused waxy bloom; while the two bands on their lower surface, having more stomatic lines, are very conspicuous.

The number and arrangement of the stomatic lines are given in the concluding table.

(*c*) *Female flowers.* The female flowers or very young cones of *L. europaea* are deep pink in colour, as the bracts, which are straight and not reflexed, are brilliant red over most of their surface, except the green midrib and mucro.

In *L. leptolepis* the female flowers are greenish in colour, as the bracts, the upper halves of which are reflexed downwards, are tinged pink only on their extreme edge, most of their surface being green.

(*d*) *Cones.* The cones of *L. europaea* are dark purple before ripening, ultimately becoming brown, conical in shape, being broadest near the base, and tapering to the apex; scales appressed, upper margin straight or incurved, basal half of the outer surface pubescent; bracts exceeding half the length of the scales, with their tips exserted and visible externally; peduncle yellow.

The cones of *L. leptolepis* are globose, being small at both ends, green before ripening, turning brown when mature; scales loose, not tightly appressed, upper margin thin and reflexed, variable in pubescence; bracts short, not exserted; peduncle reddish.

II. **Larix eurolepis**, A. Henry. This hybrid is remarkably intermediate between the two parents, as will be seen on comparing their descriptions just given, item for item, with the account which follows. The Dunkeld hybrid larch, as stated above, has ascending branches, and is considerably narrower in the crown than the Japanese larch, which it excels in vigour of growth.

(*a*) *Twigs.* Young shoots either glabrous or slightly hairy, always with some bloom on their surface, but less marked than in the Japanese larch. Twigs of the second year, closely resembling those of the European larch, being greyish-yellow with orange-tipped pulvini.[1] Buds non-resinous, light

[1] The twigs of *L. eurolepis* are always greyish-yellow, with orange-tipped pulvini on the upper surface; and are usually of the same tint beneath. Occasionally, however, the surface in the shade and directed towards the ground, is of a dull reddish-brown tint.

reddish-brown: axillary buds very slightly overlapped at the base by the subtending pulvinus: terminal buds surrounded with partly acute, partly mucronate scales.

(*b*) *Leaves* always covered with a glaucous bloom, as in *L. leptolepis*; but the two stomatic bands beneath are not so white as in that species.

(*c*) *Female flowers*, deep pink; in this respect exactly resembling *L. europaea*; but the bracts are reflexed, being similar in this respect to *L. leptolepis*.

(*d*) *Cones*, resembling in shape the European larch, being decidedly conical, but not so dark in colour before ripening as that species; scales loosely appressed, upper margin slightly reflexed, but not so much as in *L. leptolepis*, basal half of outer surface pubescent as in *L. europaea*; bracts mostly exserted, but the tips not projecting externally so conspicuously as in *L. europaea*; peduncle yellow, as in the last species.

The distinctive characters, visible to the unassisted eye, of the two species and the hybrid, may be tabulated as follows:—

	L. europaea.	*L. leptolepis.*	*L. eurolepis.*
Twigs—	glabrous	pubescent or glabrous	glabrous or very slightly hairy
	yellow	red	yellow
	no wax	much wax	slight wax
Buds—	golden brown	red brown	light reddish-brown
	no resin	resinous	no resin
	scales around terminal bud mucronate	scales around terminal bud mucronate and acute	scales around terminal bud mucronate and acute
Pulvini—	ending at base of axillary bud	overlapping base of axillary bud	slightly overlapping base of axillary bud
Bracts of young cones—	pink	greenish	pink
	straight	reflexed	reflexed
Cones—	conical	globose	conical
	scales straight or incurved	scales much reflexed	scales slightly reflexed
	bracts long, exserted	bracts short, concealed	bracts short, but a few exserted
	peduncle yellow	peduncle reddish	peduncle yellow

III. **Microscopic characters of the parent species and of the hybrid.** The young twigs and the leaves, when cross-sections, obtained by the microtome, are examined under a moderate power, show distinguishing characters:—

(*a*) *Twigs*, in the form of the two resin-canals, which run longitudinally through each pulvinus that gives rise to a leaf.

(*b*) *Leaves* in the number and form of the stomatic lines on both surfaces, in the size and position of the two resin-canals which are sometimes only feebly developed, and are then said to be indistinct; in the absence or

presence of papillae on the cells of the epidermis; in the position and size of the fibro-vascular bundle. These characters are not always identical in the two kinds of leaves (those of the long shoots and those of the spurs).

These distinctive microscopic characters are set out in the following statement:—

(1) Resin-canals of the pulvini of the young twigs, circular in *L. europaea*, oval in *L. leptolepis*, oval in *L. eurolepis*.

(2) Resin-canals of the leaves of the long shoots:—*L. europaea*—well developed, situated at the extreme outer edge of the leaf, equidistant from the upper and lower surfaces, separated from the epidermis by one layer of lignified cells.

L. leptolepis—well developed, situated nearer the lower than the upper surface, not quite at the extreme outer edge, separated from the epidermis above by two or three layers of cells, abutting on the epidermis beneath.

L. eurolepis—well developed, situated as in *L. europaea*, but separated from the epidermis by either one or two layers of cells.

(3) Resin-canals of the leaves on the short shoots:—

L. europaea—minute and indistinct, or obliterated.

L. leptolepis—small but distinct, with a lining of large cells, and separated from the epidermis by lignified cells.

L. eurolepis—minute and indistinct, or obliterated.

(4) Epidermal cells of both kinds of leaves:—

L. europaea—all smooth.

L. leptolepis—all papillate.

L. eurolepis—cells on the central part of each surface and on the outer edges, with papillae; elsewhere the epidermal cells are smooth.

(5) Fibro-vascular bundle of both kinds of leaves:

L. europaea; small, equidistant from both surfaces.

L. leptolepis; large, nearer the lower than the upper surface.

L. eurolepis; large, equidistant from both surfaces.

(6) Stomatic lines of the leaves. These occur as two bands, one band on each side of the midrib, and are usually present on both surfaces. The position of the stomata are marked out by white wax; but the lines are rather irregular in number and arrangement, being seldom continuous from base to apex. In the subjoined table, the number of lines in each band is indicated:—

	Long shoot leaves.		Short shoot leaves.	
	Upper surface.	Lower surface.	Upper surface.	Lower surface.
L. europaea,	2 or 3	3 or 4	1 or 0	2 or 3
L. leptolepis,	3 or 4	5 or 6	2 or 3	3 to 5
L. eurolepis,	2 or 3	4 or 5	1	3 to 4

IV. **Artificial crosses between the European and Japanese Larches.** The reverse cross, *Larix europaea* ♀ × *L. leptolepis* ♂, was artificially made by hand pollination at Murthly in 1914, and 37 cones were produced. These contained a large number of seeds, but only 6 seedlings were raised, which are for so far vigorous in growth. Twigs sent in 1917, showed one of the seedlings to have yellow twigs like *L. europaea*, while two other seedlings had the reddish twigs of *L. leptolepis*.

The cross, *Larix leptolepis* ♀ × *L. europaea* ♂, artificially made by hand pollination in the same year, did not result in the production of any seedlings; but in 1915, when the cross was repeated, three seedlings were raised, which are reported to be not very vigorous.

It is astonishing how difficult it is to effect cross-fertilization artificially in the case of most trees, and more especially of conifers. This lack of success is hard to explain.

The facile production of such hybrids is not possible without much further experimental work. This can only be carried out when the importance of the subject becomes recognized by those in authority.

Function of Epidermal Papillae.—The remarkable difference in the epidermal cells of the leaves of the European and Japanese larches—the surface of the former smooth, of the latter roughened with papillae—is no doubt connected with the fact well known to foresters, that the Japanese larch bears considerably more shade than the European species. Professor Henry Dixon, F.R.S., has kindly supplied us with the following note on the function of papillose epidermal cells:—

"Haberlandt[1] considers that the papillose epidermal cells of leaves act as lenses causing the parallel rays of incident light to converge within the cell and form a brightly illuminated disc on the screen formed by the protoplasm adhering to the internal surface of the back wall of the cell. He supposes that when this disc is centrally placed, as will be the case when the general surface of the leaf is at right angles to the rays of light, no stimulus is emitted for transmission to the motile tissues of the leaf; if, however, it is displaced from the central position, as will happen when the incoming light is oblique, a stimulus is perceived by the screen, which on transmission to the motor tissues evolves a response tending to bring the leaf surface perpendicular to the light.

"Whether this theory is true or not, it seems to me that a papillose epidermis must act in another important manner. Much of the light falling upon leaves must strike them either at the angle of total reflection or of

[1] "Physiological Plant Anatomy," pp. 616-631 (1914).

glancing incidence, and is lost to the leaf as far as photosynthesis is concerned. Where the epidermis is papillose, however, much of this light is forced to penetrate the epidermis, and is deflected into the leaf, where it is available for photosynthesis. The effect may be illustrated experimentally by allowing very oblique illumination to fall upon the ridged surface of so-called 'prismatic' glass, used in basement windows, etc., when the sheet of glass viewed from its smooth surface appears to glow with light. If a piece of smooth glass be substituted for the 'prismatic' glass, the oblique light fails to penetrate it, and no such effect is produced.

"It seems probable that photometric measurements could be made of the gain of light in papillose leaves, and I hope shortly to make experiments on the subject."

NOTES BY PROFESSOR A. HENRY.

The microscopical details and Fig. 1 are due to Miss Flood. For the rest of the paper, I am mainly responsible. For help in obtaining material I owe thanks to Mr. A. Murray, forester at Murthly, to his son, Mr. J. M. Murray, B.Sc., and to Mr. D. Keir, forester at Dunkeld.

Since the date of the reading of this paper, the Dunkeld hybrid larch has been described and named × *Larix Henryana*, by Mr. Alfred Rehder in *Journal of the Arnold Arboretum*, vol. i, page 52 (July, 1919). Mr. Rehder had not seen cones of this tree, and his description relates to the naked-eye characters of the twigs and leaves of young trees, about twelve feet tall, which were obtained from Dunkeld, and are now growing in the Arnold Arboretum, Boston, U.S.A. This name is invalid, being later than *Larix eurolepis*, which was published by me with a short but adequate description in the *Irish Times*, 24th June, 1919, page 4.

The Dunkeld hybrid larch was apparently first mentioned by Mr. H. J. Elwes, who states in Elwes and Henry, "Trees of Great Britain," vol. ii, page 388 (1907), that at Dunkeld there was a Japanese larch planted close to a common larch, from which seedlings were raised at his suggestion by the late D. Keir, which seemed to be hybrids between the two species.

All the plantations of Dunkeld hybrid larch which I have seen are remarkable for their great vigour and good health, being free from chermes and fungus disease. At Tubney Arboretum near Oxford, a group of fourteen trees planted in 1909, varied in 1913 from 10 ft. 7 in. to 6 ft. 8 in., averaging 8 ft. 5 in. in height. These are now (September, 1919) narrow in habit, with

beautifully straight stems, averaging 30 ft. tall. They surpass considerably in height a group of Japanese larch, planted three years earlier, namely in 1906. There is also a thriving plantation of *L eurolepis* at Leonardslee, Sussex.

M. Liechti, Inspector of Forests at Morat, Switzerland, in a letter to me dated 31st August, 1919, states that *Larix Marschlinsi* in all probability is a hybrid between *Larix leptolepis* and *Larix sibirica*; but this is not absolutely certain, as there is a group of old trees of ordinary European larch about 400 metres distant from the mother Japanese tree, the pollen of which might have been blown on the young cones of the latter.

EXPLANATION OF PLATE XI.

Fig. 1. a. *Larix europaea*. b. *Larix leptolepis*. c. *Larix eurolepis*. Sections of the leaves of the long shoots on the left, and of the leaves of the short shoots on the right. The fibro-vascular bundle in the centre, the resin-canals at the outer angles, and the epidermal layer of cells around the periphery, are shown diagrammatically. The interruptions in the epidermis indicate the position of the stomatic lines; but, owing to the irregularity of their arrangement, all the lines are scarcely ever cut through in one section. There is also shown in all the sections a short single layer of hypodermal cells, confined to near the middle line of the upper and lower surfaces.

Fig. 2. Reproduced from a photograph. 1. *Larix europaea*. 2. *Larix eurolepis*. 3. *Larix leptolepis*. Mature cones, with the scales gaping apart and the seeds fallen, on the left. Cones just before ripening, with the scales unmoved and still bearing the seeds, on the right.

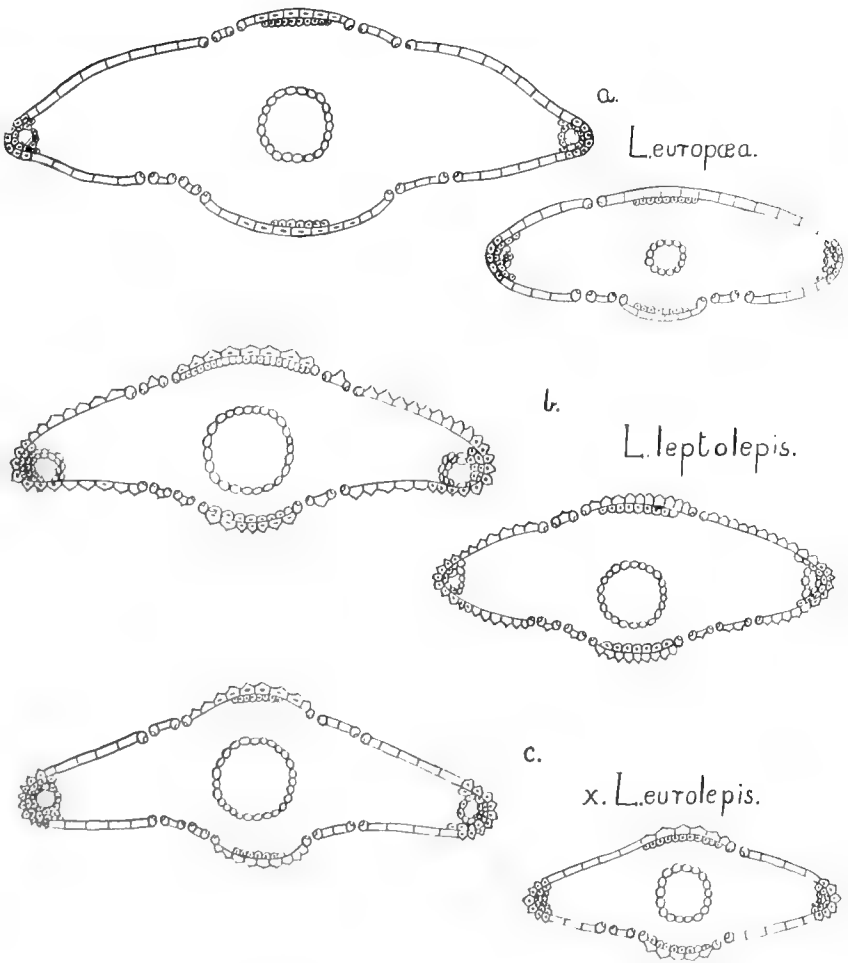


Fig. 1.

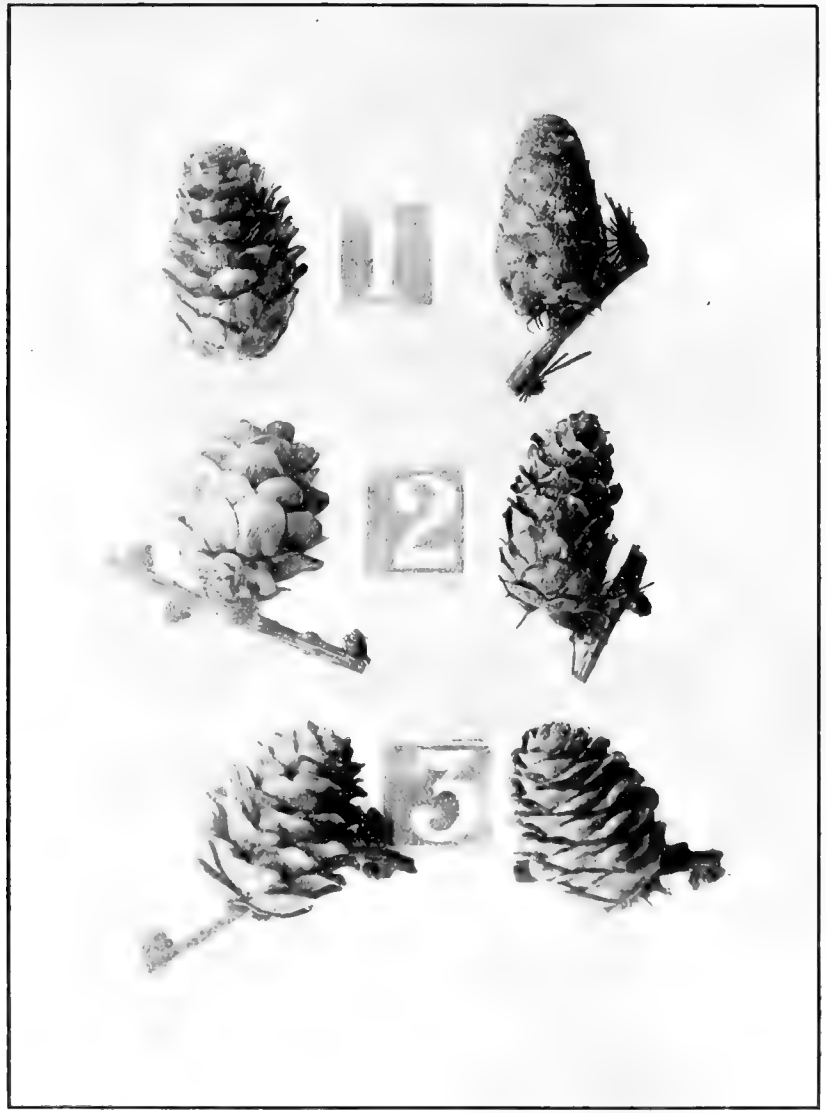


Fig. 2.

V.

THE DOUGLAS FIRS: A BOTANICAL AND SILVICULTURAL DESCRIPTION OF THE VARIOUS SPECIES OF PSEUDOTSUGA.

By AUGUSTINE HENRY, M.A., F.L.S.,

AND

MARGARET G. FLOOD, B.A.

(Plates XII—XIV.)

Read January 26. Published May 17, 1920.

I.—Introduction.

The Douglas Fir of North America is one of the great timber trees of the world. Widely spread over the vast region between the Rocky Mountains and the Pacific Coast, where the diversity in climate is extreme, it exists in several forms, remarkably different in growth and utility. It was the primary object, at the outset of this study, to investigate the two chief forms, which are still grouped together by most botanists as a single species, *Pseudotsuga Douglasii*, Carrière. These are, however, more correctly regarded as two species: one, the Pacific Coast, Oregon, or Green Douglas Fir, to which Carrière's name should be restricted, and the other, the Rocky Mountains, Colorado, or Blue Douglas Fir, which Mayr named *Pseudotsuga glauca*. These two species inhabit separate regions, and differ much in silvicultural features. The Oregon Douglas Fir forms forests of immense trees on the Pacific Coast, and is now much cultivated in the British Isles, where its rapid growth and enormous yields of timber in a short term of years render it very valuable. The Colorado species, throughout its home in the Rocky Mountains, is much inferior in size and vigour, and is of little or no value in commercial afforestation in this country. The importance of a comparative study of these two species is unquestionable.

The original scope of this paper has been extended to include an account of the whole genus. This is given below in a methodical description of the genus and of the seven species which have been distinguished. Our knowledge of *P. Douglasii* and *P. glauca*, both in the wild and cultivated states, is fairly complete. Of the other species, the native material for study

has been very scanty, while cultivated specimens are extremely rare, consisting of a few small plants of two or three species, only recently introduced.

A brief reference may now be made to some other results of the present investigation, of which further details will be given in the succeeding pages. The microscopic structure of the leaves has been found to be a distinct and constant character in each species, evidently being correlated with the special climate in which the tree lives in a wild state. The Colorado and Oregon Douglas Firs exemplify this in a striking manner, the leaf-anatomy of the former showing many xerophytic features which are adaptations to the dry and continental climate of the Rocky Mountains. The notable difference in the odour exhaled by these two trees led to an examination of the oil which is obtained by distillation from their foliage. This oil proves in each species to be very distinct in chemical composition. A similar difference exists in the oil of the various forms of the Yellow Pine, which occur in the same territory as the American Douglas Firs.

II.—The Genus Pseudotsuga.

Pseudotsuga is a genus of Abietineae, akin to Larix in the structure and qualities of the wood and in its embryonic history,[1] but resembling Abies in the solitary evergreen needles. Main branches whorled. Bark on young stems, smooth and with resin-vesicles; on older trunks, thick, corky, furrowed, consisting of alternate thin white layers and thick reddish-brown layers. Branchlets with somewhat raised pulvini, each coloured around the projecting apex, which bears a single leaf. Buds diagnostic of the genus, spindle-shaped, sharp-pointed with numerous shining brown scales. Leaves linear, narrowed at the base, with a median furrow above, and a green midrib and two stomatic bands beneath; transverse section with a single fibro-vascular bundle and two marginal resin-canals.

Cones short-stalked, pendulous, ripening in the first season, the rounded scales gaping to let out the ripe seed; bracts conspicuous, exserted, three-lobed at the apex, the terminal lobe awn-like. Seed without resin-vesicles, differing from that of Larix in the pointed base; wing large, rounded above, not detachable without breaking, covering not only the upper surface, but also a considerable part of the lower surface of the seed.

Seven specimens of Pseudotsuga have been described, three occurring in western North America, and four restricted to small areas in western China, Formosa, and Japan. These may be arranged as follows:—

[1] See Joseph Doyle, in Scient. Proc. R. Dublin Soc. xv, 325 (1918), on the various points of agreement, which establish a close natural affinity between Larix and Pseudotsuga.

I.—AMERICANAE. Leaves undivided at the apex.

1. *P. Douglasii*, Carrière. Pacific Coast Region of North America. Branchlets pubescent. Leaves thin, flat beneath, with fragrant pine-apple odour. Cones 3 to 4 inches long, with straight erect bracts.

Var. *caesia*, Schwerin. Northern Rocky Mountains. This differs from the type in the glabrous branchlets, thicker needles, and smaller cones, $2\frac{1}{2}$ inches long.

2. *P. glauca*, Mayr. Rocky Mountains, Colorado to Mexico. Branchlets variable in pubescence, often glaucous. Leaves thick, rounded beneath, with strong turpentine odour. Cones 2 to 3 inches long, with reflexed bracts.

3. *P. macrocarpa*, Mayr. Southern California. Branchlets variable in pubescence. Leaves thin, flat beneath, ending in a cartilaginous point. Cones very large, $3\frac{1}{2}$ to 7 inches long, with erect straight bracts.

II.—ASIATICAE. Leaves bifid at the apex.

* Branchlets glabrous.

4. *P. japonica*, Beissner. Japan. Leaves about 1 inch long. Cones small, about $1\frac{1}{2}$ inches long, with short reflexed bracts.

** Branchlets pubescent.

5. *P. sinensis*, Dode. N.-E. Yunnan, China. Leaves $1\frac{1}{4}$ inches long. Cones 2 inches long, with short reflexed bracts.

6. *P. Forrestii*, Craib. W. Yunnan, China. Leaves nearly 2 inches long. Cones $2\frac{1}{4}$ inches long, with long reflexed bracts.

7. *P. Wilsoniana*, Hayata. Formosa. Leaves $\frac{3}{4}$ inch long. Cones 2 to $2\frac{1}{2}$ inches long, with short reflexed bracts. This species is possibly identical with *P. sinensis*, Dode.

Pseudotsuga Douglasii. Oregon Douglas Fir.

Pseudotsuga Douglasii,[1] Carrière (1867).
Pseudotsuga mucronata, Sudworth (1895).
Pinus taxifolia, Lambert (1803).
Pseudotsuga taxifolia,[1] Britton (1907).

The Oregon Douglas Fir attains 300 feet or more in height. Branchlets

[1] *Pseudotsuga Douglasii* is the first name of the species under the correct genus, and is the name that has been generally used for many years by foresters, nurserymen, and botanists in Europe. *Pseudotsuga taxifolia*, founded on the earliest specific name, is generally adopted in America, and is in accordance with the Vienna Rules of Nomenclature.

without bloom, yellowish at first, grey in the second and third years, pubescent with minute hairs; pulvini slightly elevated; buds with little or no resin.

Leaves with fragrant pine-apple odour, pectinate, either flat in one plane or with a V-shaped depression between the two converging lateral sets, not glaucous, straight, 1 to $1\frac{1}{4}$ inch long, thin; apex acute or rounded; lower surface flat, with two well-defined whitish bands of crowded minute stomata; upper surface with a distinct median groove from base to apex. A transverse section of the leaf shows the proportion of breadth to thickness as 3·6 : 1; epidermal cells of the under surface papillate; hypoderm absent except in the centre above and beneath; idioblasts never present; resin-canals with two layers of lining cells.

Female flowers conic, usually greenish, composed of small pointed erect bracts, which are green with a narrow pink border; seed-scales minute, with ovules converging at the antipodal ends. In some trees the flowers are reddish, so that colour alone will not distinguish this species from the Colorado Douglas Fir.

Cones when ripe 3 to 4 inches long, $1\frac{1}{2}$ to 2 inches wide, light brown, with numerous (about fifty) scales in $\frac{13}{21}$ phyllotaxis, and with erect straight bracts. Scales thin, $\frac{3}{4}$-$\frac{7}{8}$ inch wide, slightly concave internally, minutely pubescent externally, rounded above with a crenulate margin. Bracts erect, longer than the scales, with terminal slender awn and two triangular, sharp-pointed, slightly laciniate lateral lobes. Seed about $\frac{1}{4}$ inch long, dark shining reddish-brown above; light brown, mottled with white beneath; wing rounded at the summit. Rafn gives the average weight of 1000 seeds as 10·3 grammes.

The seedling has six to eight cotyledons about $\frac{4}{5}$ inch long, triangular in section, entire in margin, green below and bluish above with two stomatic bands. Primary leaves about $\frac{1}{2}$ inch long, linear, sharp-pointed, grooved in the median line above, with two stomatic bands beneath. Buds ovoid, reddish, smooth, pointed.

The Oregon Douglas Fir is a native of the Pacific coast region, which includes southern British Columbia, Washington, and Oregon, from the crest of the Cascade mountains to the sea, and the coast ranges of California as far south as the Santa Lucia range. This species also occurs in the Sierra Nevada range in California.

The other principal trees of the Pacific coast region are Sitka Spruce, *Thuya gigantea*, Western Hemlock, and *Abies grandis*, with the Redwood limited to the coast of California. These are the largest trees in the world, producing the maximum volume of timber per acre. The region is extremely humid, with an annual rainfall of 60 to 100 inches, most of which falls in

the winter months. The prevailing winds are warm and from the sea, the climate being mild and uniform, with frequent fogs, and gradual moderate changes in temperature. Cool summers and mild winters are the rule.

The Oregon Douglas Fir occurs also in the Sierra Nevada of California, where the rainfall is less, 20 to 60 inches annually, with a long growing season. Here it attains a large size, but is not so abundant as on the coast. The accompanying species are not the same, *Abies grandis* being replaced by *Abies concolor*, and the Redwood by *Sequoia gigantea*, while *Thuya gigantea* and Sitka Spruce are absent.

Atmospheric humidity is essential to the good development in height and volume of the Oregon Douglas Fir. It flourishes best where both relative humidity of the air and precipitation are greatest. The rainfall of the region inhabited by this species exceeds that of any other forest region in the United States. The growing season is comparatively long, about six months. In consequence, no other tree in North America attains so great a height in the same term of years. It reaches on an average 154 feet in 100 years, the Redwood being next with 150 feet.

The Oregon Douglas Fir does not bear exposure to severe cold, and for this reason does not extend in America further north than latitude 53°. Its growth is also checked by much exposure to the wind. Thus, in British Columbia, it is not found on the mainland near the open sea, on account of the strong south winds which prevail in winter; yet it forms splendid forests close to the water's edge on the sea coast south of Queen Charlotte Sound, being protected by the mountains of Vancouver Island. To the north it only occurs in sheltered inlets. It is quite absent from the Coast Archipelago, where there is constant wind. It thus differs much from Sitka Spruce, *Thuya gigantea*, and Western Hemlock, which grow well in the islands, and occur as far north as Alaska. In Vancouver Island, the effect of the wind on its distribution is very plain, as it is rare and seldom reaches a large size on the west coast close to the sea, while it is very abundant and of gigantic size a few miles inland.

In America, Oregon Douglas Fir grows best on fresh sandy loam or loamy sand, and reaches its greatest size on deep porous soils, with considerable water content, but at the same time well drained. It is never found on the Pacific coast in swampy ground, being absent from the poorly drained areas, with patches of sphagnum bog, sedges, and rushes, on which Sitka Spruce and *Pinus contorta* grow fairly well. It also avoids light dry sands and heavy clays; but apart from these limitations, it is rather indifferent to conditions of soil, if the climate is suitable, as it grows fast on poor gravels and sands in the Puget Sound country. It apparently will not bear inundation in

cultivation in Europe; but it grows in Washington and Oregon, on the edges of ocean inlets, where the least rise submerges its roots.

In Washington and Oregon it bears less shade than Sitka Spruce, Western Hemlock, *Thuya gigantea*, and *Abies grandis*; but maintains itself in competition with these species on account of its greater rate of height growth, and its adaptability to varying conditions of soil and moisture. It demands for its best growth an abundance of light overhead, but produces the tallest and straightest stems when well shaded from the side. It attains its optimum development in even-aged stands, where all the trees are about the same height, and all receive direct top-light. Grown in this way, the stems are cylindrical in form and crowded upon the ground, yielding an immense volume of timber per acre. The branches are very persistent, and remain on the stem long after their foliage has died from lack of light. Even in dense stands on the Pacific coast, the shedding of the dead branches only begins when the trees are forty years old; and stems clear and smooth below the crown of living foliage are not produced till seventy or eighty years old.

Owing to the remarkable rate of its growth in height and diameter, and its capacity to form dense stands, the Oregon Douglas Fir excels in North America all other species in the yield of timber per acre. The yield tables,[1] compiled from measurements taken by Hanzlik in 568 plots in the forests of this species in Oregon and Washington show that between the ages of 50 and 120 years the mean annual increment in volume is about 170 cubic feet per acre on first-class sites, 130 cubic feet on second-class sites, and 100 cubic feet on inferior sites. Much higher yields would be reckoned if thinnings could have been included, but account was only taken of the timber actually growing on the ground at the time of measurement. These tables show that on good soil an acre of Oregon Douglas Fir at sixty years old measures 10,000 cubic feet of timber, the average height of the trees being 120 feet. Munger[2] gives the average height on good soil in the forests of Washington as 110 to 130 feet at seventy years old, and 150 to 190 feet at 150 years old.

Pseudotsuga Douglasii var. **caesia.**

This variety, which was described by Schwerin in *Mitt. Deutsch. Dendr. Ges.*, 1907, p. 257, attains a height of 100 to 150 feet. Branchlets glabrous, grey in the first winter and second and third years; pulvini slightly prominent; buds resinous. Leaves pectinate, with a trace of glaucous bloom, resembling the type in the continuous median groove above, but intermediate in most respects between the Oregon and Colorado species. A

[1] *Quarterly Journal of Forestry*, viii, 146 (1914).
[2] *U. S. Dept. Agric. Forest Circular*, No. 175 (1911).

transverse section shows the proportion of breadth to thickness as 2·75 : 1 ; epidermal cells of the under surface papillate; hypoderm well-marked in the centre above and beneath, occurring elsewhere in groups of two or three cells; idioblasts few; resin-canals with two layers of lining cells; odour like that of the type, but less fragrant.

Cones resembling the typical form in the straight and not reflexed bracts, but smaller in size; scales fewer (about thirty) in $\frac{8}{13}$ phyllotaxis, $\frac{7}{8}$ inch wide, more concave internally. Bract with long terminal awn, and short blunt lateral lobes. Seed smaller than in the type.

This variety is intermediate in the characters of the leaves between the Oregon and Colorado species, but is closer to the former, which it resembles in the cones. The flowers have not been seen by us.

Var. *caesia* was the name given by Schwerin to the Douglas Fir occurring in the interior of British Columbia, at Quesnel, on the Upper Fraser River, lat. 53°, where the climate is cold and comparatively dry. This variety extends throughout the northern Rocky Mountains region of the Douglas Fir, which includes the interior of southern British Columbia, north-eastern Washington, northern Idaho, and north-western Montana.

The climate of this region is not so humid as on the Pacific Coast, the annual rainfall being 20 to 40 inches, falling mainly in the growing season. The winter is very dry and cold, the temperature sometimes falling to −25° F. A considerable number of the Coast conifers also grow in this region, notably *Abies grandis*, Western Hemlock, and *Thuya gigantea*. *Pinus ponderosa*, rather rare in the Coast belt, becomes here an important constituent of the coniferous forest. *Larix occidentalis* is confined to this region.

Attention has recently been called[1] by Professor John Davidson, F.L.S., Vancouver, B.C., to the occurrence of manna on the foliage and branchlets of this variety of the Douglas Fir in the dry belt of British Columbia, especially in the valleys of the Fraser and Thompson rivers near Lytton, Lillooet, and Nicola. This manna is composed mainly of the rare sugar, melezitose. It is produced in considerable quantity, and is not due to the attack of aphides, being apparently a natural exudation from the leaves. It is comparable to the *Manne de Briançon*, which is occasionally found as an exudation on the leaves of the European larch in the French Alps "in the height of summer and in the early part of the day." Melezitose is not known to occur in any other conifer.

In 1907 young trees of var. *caesia* were raised in German nurseries from seed gathered at Quesnel in the preceding year by Baron von Fürstenberg.

[1] See *American Forestry*, February, 1920, p. 85 ; *Scientific American*, 14 February, 1920, p. 165 ; and Flückiger and Hanbury, *Pharmacographia*, 416 (1879).

About fifty of these trees in the Queen's Cottage Grounds, Kew Gardens, are healthy, but comparatively slow in growth. They were 7 to 10 feet high in 1919, forming narrow regular pyramidal trees, with ascending branches. They differ from the type in not making a summer shoot. At Avondale, a small plot, nine years old from seed, average 5 to 8 feet high, about half the height of Oregon Douglas Fir of the same age planted beside them. In Germany also, var. *caesia* grows more slowly than the Oregon Douglas Fir, and can be recommended for planting only in northern and mountain climates, where it would probably withstand severe winter frosts.

Pseudotsuga glauca. Colorado Douglas Fir.

Pseudotsuga glauca, Mayr, in *Mitt. Deutsch. Dendr. Ges.* 1902, p. 86.
Pseudotsuga Douglasii, var. *glauca*, Mayr, *Wald. Nordamer.* 307 (1890).

The Colorado Douglas Fir attains about 80 or 90 feet in height. Young branchlets either glaucous and reddish brown in the first three seasons, or without bloom, when they become grey in the second or third year; pubescence variable, often glabrous on terminal branches, and pubescent on lateral branchlets; pulvini elevated, projecting at the apex. Buds resinous, more or less covered with a whitish deposit of resin.

Leaves with strong odour of turpentine, not regularly pectinate, those in the middle line spreading irregularly, and more or less upturned on the branchlets; similar to *P. Douglasii* in length and breadth, but thicker, and convex beneath; upper surface indistinctly grooved, the median furrow not continued to the apex; lower surface with two bands of crowded large stomata. A transverse section shows the ratio of breadth to thickness as 2·4 : 1; epidermal cells all papillate; hypoderm nearly continuous all round; idioblasts numerous; resin-canals with two layers of lining cells.

Female flowers irregular in shape, with widely spreading reflexed bracts, brilliant pink in colour, more rounded than in the Oregon species. Seed-scales with ovules diverging at the antipodal ends.

Cones, when ripe 2 to 3 inches long, 1¼ inch broad, light brown, with comparatively few (about 30) scales in $\frac{8}{13}$ phyllotaxis, and with reflexed spreading bracts. Scales somewhat smaller than in *P. Douglasii*, more concave internally, pubescent externally; rounded above with entire margin. Bracts reflexed about the middle, and spreading outwards; median awn slender, with triangular acute lateral lobes. Seeds similar to *P. Douglasii*, with paler wings. Rafn gives the average weight of 1000 seeds as 11·3 grammes.

Pseudotsuga glauca is a native of the central and southern Rocky Mountains, extending from eastern Montana and Wyoming southwards through

Colorado and Utah to Arizona, New Mexico, and northern Mexico. In this region the daily and seasonal ranges of temperature are great, the winter being long and severe, with frequent periods of extreme cold, the temperature falling sometimes to -30° F. The summer is hot, and often very dry. The annual precipitation in the Douglas Fir zone is 15 to 25 inches, largely in the form of snow. The growing season is short, often less than three months. The region is characterized by the occurrence of *Picea Engelmanni* and *Pinus ponderosa scopulorum* throughout, with *Pinus Murrayana* in the north and extending as far south as central Colorado. In the southern parts of the Rocky Mountains, as in New Mexico, the climate is more moderate, with a smaller range of temperature (-10° to 95° F.), heavier rainfall, and a longer growing season. Here the Douglas Fir becomes a larger tree, and possibly constitutes a distinct variety. (See note, p. 91.)

The Rocky Mountains Douglas Fir is much less susceptible to injury from drought than the Coast species; but in arid regions it grows best on cool northern slopes, and in deep valleys where moisture in the soil and air is retained. It bears without injury very severe cold in winter, but is liable to attack by spring frosts, which damage the young shoots after growth has begun. In the Rocky Mountains it grows well both on dry sandy tracts and on moist loamy soils, but does not succeed on clay, on coarse gravel, or in poorly drained situations. It does not bear shade as well as Engelmann Spruce or *Abies lasiocarpa*.

In its native home it is very slow in growth, and rarely attains over 90 feet in height and 1½ feet in diameter. Yield tables are not available; but figures given by Frothingham[1] show that at its best in the wild state it reaches about 90 feet in 150 years. On account of its slow growth, the volume of timber per acre yielded by this species in the Rocky Mountains is very small; and it usually forms an open forest of small trees, with tapering stems and persistent branches.

Pseudotsuga macrocarpa, Mayr, *Wald. Nordamer.* 278 (1890).

This species attains a height of 70 or 80 feet. Branchlets reddish brown in the first year, grey in the second and third years, variable in pubescence, either quite glabrous or with scattered short hairs; pulvini only slightly raised. Buds more or less coated with resin.

Leaves pectinate, not glaucous, curved, 1 to 1¾ inch long, usually tipped with a cartilaginous point; median groove on the upper surface indistinct; lower surface with raised broad midrib, and two depressed whitish bands,

[1] *U. S. Dept. Agric. Forest Circular* No. 150, p. 30 (1909).

each of 5 to 7 stomatic lines. A transverse section of the leaf shows the margins pointed and turned down: proportion of width to thickness as 3·6 : 1; epidermal cells all papillate; hypoderm nearly continuous, with thick cell-walls; idioblasts very few; resin-canals with two layers of lining cells.

Cones, the largest of the genus, 3½ to 7 inches long, and 2½ inches wide; with numerous (50–75) scales, in $\frac{3}{5}\frac{1}{1}$ phyllotaxis, and with straight, non-reflexed bracts. Scales thick, woody, broader than long, 1½ to 2 inches wide, slightly concave internally, and densely and minutely pubescent externally, rounded above with a crenulate margin. Bracts slightly exserted, straight, with stout terminal awn, and two sharp-pointed lateral lobes. Seed very large, nearly ½ inch long, dark brown and shining above, whitish mottled with brown beneath; wing broad and rounded. Rafn gives the weights of two lots of 1000 seeds as 72 and 108 grammes.

The seedlings, which are described by Zederbauer in *Centralblatt Gesammte Forstwesen*, 1908, Part 5, differ considerably from those of the Oregon species in the more numerous (7 to 15) and longer (nearly two inches) cotyledons. The primary needles are also very long, ½ to 1½ inch. The seedlings are delicate, being killed by ordinary winter frosts, and did not survive in the open air at Mariabrunn, near Vienna.

This species occupies an isolated area in the arid mountains of South California, at 3000 to 5000 feet elevation, forming open groves, or growing in mixture with shrubs, oaks, or pines. Its distribution extends from the Santa Inez Mountains near Santa Barbara on the coast, to the Cuyamaca Mountains on the southern borders of California, and it also grows on San Pedro Martir Mountain in Lower California. This region is characterized by a small rainfall (10 to 25 inches annually), a mild winter, rarely below 15° F., and a very hot summer. Other characteristic conifers here are *Pinus Jeffreyi* and *Pinus Coulteri*, both with very large cones.

This species was introduced into England by Mr. H. Clinton Baker, who raised seedlings at Bayfordbury, Hertford, in 1910. Six planted out in the woods were thriving in 1919, the largest being 4 feet high. This species is tender to spring frosts, but sheltered by surrounding trees it bore without injury 0° F. in the winter of 1918–1919.

Pseudotsuga sinensis. Dode, in *Bull. Soc. Dendr. France*, 1912, p. 58; Craib in *Notes R. Bot. Garden, Edinburgh*, xi., plate 161 (1920).

This species is said to be a very large tree. Branchlets moderately pubescent, with minute stiff hairs, reddish brown in the first winter, grey in the second and third years; pulvini scarcely elevated. Buds not resinous.

Leaves pectinate, bifid at the apex, 1 to 1¼ inch long; upper surface deeply grooved from base to apex; lower surface with a wide raised midrib and two narrow white bands, each of 7 to 8 lines of crowded minute stomata. A transverse section shows the edges of the leaf to be pointed and turned slightly down; proportion of width to thickness as 3·4 : 1; epidermal cells of the lower surface papillate; hypoderm nearly continuous all round the leaf; idioblasts numerous; resin-canals with one layer of lining cells; cell-walls of the spongy mesophyll infolded.

Cones about 2 inches long and 1¼ inches wide, of few scales (about 20) in $\frac{8}{13}$ phyllotaxis, and short reflexed bracts. Scales large, thick, woody, about 1¼ inches wide; upper margin rounded, with a slightly bulging apical part; exposed part of the scale much wider than in *P. Forrestii*. Bracts shorter than the scale, reflexed near the summit, with long central awn and two short lateral lobes. Seed not seen, described as ⅘ to 1 inch long, inclusive of the long narrow-pointed and striated wing.

This species is a rare tree in China, where it has been found by Père Maire growing on limestone at 8,500 feet elevation in north-eastern Yunnan at Che-hai and Tung-chuan. Seedlings were raised in 1912 by M. Chenault at Orleans, and one of these had attained at Leonardslee about 2½ feet high in 1918.

Pseudotsuga Wilsoniana, Hayata, in *Icon. Plant. Formos.*, v. 204, t. 15 (1915).

This species is a native of Formosa, where it is recorded from one locality only, Mount Morrison, at 9,000 feet altitude. It is not represented in European herbaria. Judging from the description and figure, it differs but little from *Pseudotsuga sinensis*, agreeing with the latter in the pubescent branchlets and bifid short leaves. The cone is similar in the shape of the scales, and in the short reflexed bracts.[1]

Pseudotsuga Forrestii, Craib, in *Notes R. Bot. Garden, Edinburgh*, xi, 189, plate 160 (1920).

This tree attains 60 to 80 feet in height. Branchlets with scattered minute rigid hairs, which are sometimes absent; pulvini slightly projecting at their apices, and with translucent edges due to the resin-canals. The branchlets appear to be reddish brown at first, becoming grey in the second and third years. Buds slightly resinous.

Leaves pectinate, bifid at the apex, the largest in the genus, up to nearly 2 inches in length; upper surface with deep median groove from base to apex;

[1] Specimens of branches with cones of this species have been very recently received by Professor Henry from Mr. R. Kanehira, of the Formosan Forest Service.

lower surface with wide raised midrib and two narrow white bands, each of 5 to 6 lines of crowded minute stomata. A transverse section of the leaf shows the margins pointed and turned downwards; proportion of width to thickness as 3·7 : 1; epidermal cells of the lower surface papillate; hypoderm present only in the centre, and very sparsely at the outer edges; idioblasts numerous: resin-canals with two layers of lining cells; cell-walls of the spongy mesophyll infolded.

Cones about $2\frac{1}{4}$ inches long and $1\frac{1}{4}$ inches wide, with 20 or more scales in $\frac{8}{13}$ phyllotaxis, and long reflexed bracts. Scales smaller than in *P. sinensis*, about $1\frac{1}{8}$ inches wide, with exposed part very narrow, and more concave internally. Bract with apical part reflexed over the scale in the next rank, longer than in *P. sinensis*, with a long central awn and triangular acute lateral lobes. Seed about $\frac{3}{5}$ inch long, including the narrow-pointed pale brown wing, the upper surface of which bears a few hairs near the lower inner angle. The seed itself is dark shining brown above, and mottled light brown beneath.

This tree is a native of western Yunnan, in China, where it grows at 10,000 feet altitude in the Mekong Valley, lat. 27° 40′. Young plants raised from seed lately sent home by Forrest are in cultivation at Edinburgh.

It is very closely allied to *P. sinensis*, the microscopic characters of the leaf being very similar, but it differs in the cone and seed, and the leaves are much longer. For the present it should be kept distinct.

Pseudotsuga japonica Beissner, in *Mitt. Deutsch. Dendr. Ges.*, v. 62 (1896). *Tsuga (Pseudotsuga) japonica*, Shirasawa, in *Tokyo Bot. Mag.*, ix. 86, t. 3 (1895).

The Japanese Douglas Fir attains about 100 feet in height. Branchlets glabrous, yellowish in the first year in native specimens, reddish in cultivated trees, ashy grey in the second and third years; pulvini projecting at their apices. Buds without resin.

Leaves pectinate, bifid at the apex, about 1 inch long, thin, not glaucous; upper surface with a median furrow from base to apex; lower surface flat, with two broad white bands, each of eight to ten lines of crowded minute stomata. A transverse section shows, under the microscope, the ratio of breadth to thickness as 3·5 : 1; epidermal cells of the lower surface papillate: hypoderm absent except in the middle line; idioblasts present; resin-canals with only one layer of lining cells.

Cones, the smallest of the genus, about $1\frac{1}{2}$–$1\frac{3}{4}$ inches long and 1 inch in diameter, with few (15 to 20) scales in $\frac{5}{8}$ phyllotaxis and short reflexed bracts. Scales woody, about $\frac{1}{4}$ inch wide, dark violet brown and glabrescent

externally, slightly concave internally from side to side, round above, with minutely crenulate or entire margin. Bracts short, with apical part reflexed over the scale in the next row; terminal awn broad, longer than the short, blunt, laciniate lateral lobes. Seed $\frac{3}{8}$ inch long, dark shining brown above, pale mottled brown beneath; wing short, broad, dark brown.

This species is a native of south-eastern Japan, where it is restricted to a few localities in the provinces of Tosa, Kii, and Yamato. It is a rare tree, growing in mixed forests between 1,000 and 3,000 feet elevation.

Three small trees were introduced into England by Mr. H. Clinton Baker in 1910. These are now thriving at Bayfordbury, Hertford, the largest about 9 feet high, and making a leading shoot of 16 inches long in 1918. The young branchlets of these trees are brilliant red in colour.

III.—The Oregon and Colorado Douglas Firs Contrasted.

Before giving an account of the different behaviour in cultivation of the Oregon and Colorado Douglas Firs, it will be advisable to deal at some length with the distinctive characteristics of the two species. They differ fundamentally, as already mentioned, in their distribution in the wild state, each occurring in a climate totally unsuited to the other. Introduced into cultivation, they retain their qualities, and are remarkably distinct in habit and growth as well as in botanical characters.

1. *Habit.* The difference in habit may be mainly attributed to the much more rapid growth of the Oregon Douglas Fir. In this species, the main branches, coming off the stem far apart, are long, slender, and wide-spreading, being often curved by their own weight into the horizontal position, ultimately forming in adult trees a wide crown of foliage. The Colorado Douglas Fir has short stiff branches, coming off close together, ascending at an acute angle, and forming a narrow compact regularly pyramidal crown.

2. *Summer Shoot.* The Oregon Douglas Fir produces in summer a second leading shoot, which continues to grow during autumn. This explains in part the rapid growth in height of this species. The late growth, however, renders the tree susceptible to injury by early winter frosts, when it is grown at a high altitude or in a severe climate. The Colorado Douglas Fir never produces a summer shoot, and always completes its growth early in the season. The leading shoot has thus time to harden its wood before the onset of winter.

3. *Foliage.* The foliage of the Oregon Douglas Fir is more regularly disposed in two ranks than that of the other species, and is softer when a leafy branch is felt by the hand. The leaves of the Colorado Douglas Fir are upturned on the branchlets, and are coarse to the touch when handled.

A cross-section of the leaf of the Oregon species, viewed with an ordinary hand lens, appears thin, with a flat under surface; while that of the Colorado species is thick, with a convex under surface. The glaucous or bluish colour of the Colorado Douglas Fir is generally apparent; but this is a variable character, which cannot be always relied on. The difference in the odour of the two trees is remarkable, that of *P. glauca* being strong and like turpentine, while that of *P. Douglasii* is very agreeable, with a fragrance like pine-apples. This is readily recognized when the leaves are rubbed between the fingers, or when a leafy branch is placed in water in a room.

4. *Flowers.* The female flowers or very young cones are remarkably different in colour and shape in the two species. (See Plate XIII.) The young cones in the early stage are formed of comparatively large bracts, at the base of each of which is a minute scale, bearing two ovules. In the Colorado species the reflexed and spreading bracts form an irregularly shaped body, which is brilliant red in colour. In the Oregon Douglas Fir the bracts are all straight, appressed and erect, forming a regular cone, which is usually greenish, rarely pink in colour. The male flowers apparently do not differ in the two species.

5. *Cones.* The ripe cones of the Oregon Douglas Fir are large in size, composed of numerous scales, and with straight appressed erect bracts. The smaller cones of the Colorado species have fewer scales, with most, if not all, of the bracts reflexed about the middle, either entirely backwards over the scale beneath, or spreading at right angles to the axis of the cone.

6. *Wood.* The Oregon Douglas Fir, when grown on a long rotation, as in America, yields excellent timber, large in size, free from knots, straight in grain, light in weight, and very durable. It is the strongest wood in the world for its weight that is obtainable in commercial quantities. Quickly grown timber, in this country, unless the rings are extremely wide, is probably equally strong, but is less valuable, having more defects. It ranks in quality between Larch and Scotch Pine, but surpasses both in dimensions. It is equally durable with Larch, converts well, keeping straight when long sizes are sawn; and if carefully stacked dries quickly, and is not liable to warp. It has been used for gates, doors, and fencing, and for railway sleepers and pit timber.

The Colorado Douglas Fir, owing to its small size and mode of growth in open stands, yields as a rule rough timber. It is very strong and durable, but irregular in structure.

A difference in the microscopical structure of the wood of the two species has been lately described.[1] In the Oregon Douglas Fir the thickened

[1] G. J. Griffin, in *Journal of Forestry*, xvi, 813 (1919).

portion (torus), on the membrane of the bordered pits, between the tracheids, is placed in a central position, dividing equally the pit cavity. In the Colorado species the torus is usually pressed to one side, against the opening of the pit cavity, completely closing it. In consequence, the wood of the Oregon species is readily permeated by creosote, the reverse being the case in the other species.

7. *Reproduction.* The Oregon Douglas Fir bears seed freely and at an early age in the British Isles, and reproduces itself naturally in many districts, self-sown seedlings being especially numerous on sandy soil in the New Forest and other parts of Hampshire. They are 40 feet high on poor gravelly soil at Dunster, Somerset, where the parent trees are only thirty-eight years old. In Ireland natural seedlings have been noticed at Derreen in Kerry, and at Coollattin and Powerscourt in Wicklow. The seeds have, however, a poor germinating capacity as a rule, and are liable to be destroyed by the larva of an insect, *Megastigmus spermotrophus*, which has been accidentally introduced into Europe from Oregon. Rafn[1] has made numerous tests of imported American seed, and finds a remarkable difference in the germination of the two species. The seed of the Colorado Douglas Fir germinates much sooner and in considerably larger percentage than that of the Oregon species.

8. *Resistance to Frost.* The Colorado Douglas Fir is much hardier than the Oregon species, and is never injured by autumn or winter frosts in this country. It is, however, occasionally damaged by late frosts in spring, as on 23rd May, 1911, when young trees at Ampton, Suffolk, were just as badly cut as the Oregon Douglas Firs beside them. At Balmoral it begins to make new growth later in the season than the other species, and is said on that account never to suffer there from frost.

The Oregon Douglas Fir does not withstand extreme cold in winter, and for this reason cannot be cultivated at high altitudes or in northern climates. It is unharmed by ordinary winter temperatures in all parts of the British Isles below tree limit. The great frost of February, 1895, when the temperature fell to – 17° F., did not hurt the Oregon Douglas Fir at Balmoral, where it is planted up to 1,200 feet elevation. It is, however, liable to be injured in low-lying damp localities by both late frosts in spring and early frosts in autumn. Injury by frost is more likely to occur in the nursery than in the forest. In Bavaria the leaves turn red when the winter is severe, and drop off in the following spring. The Colorado Douglas Fir is never injured in this way, possibly owing in part to the protection of the thin layer of wax which gives the leaves their glaucous tint.

[1] *Testing of Forest Seeds, 1887–1912*, p. 40.

9. *Insect Attack.* During the last six years a species of Chermes, identified by the Bureau of Entomology, U. S. Department of Agriculture, with *Chermes cooleyi*, Gillette, var. *Coweni*, has been noticed in the south of England on the Oregon Douglas Fir.[1] It has been observed mainly on the lower and partially shaded branches of fairly large trees, and so far has done little harm. It has not yet been found in England on the Colorado species. This is remarkable, as in the contiguous plantations of the two species in Bagley Wood, Oxford, and at Highfield, East Liss, the insect does not spread from the trees of the Oregon species on which it occurs to those immediately adjoining of the other species.

This Chermes, however, occurs in the forests of *Pseudotsuga glauca* in the Rocky Mountains, and on ornamental trees of this species on the Atlantic coast. It was recorded from only park trees in the Pacific coast region; but Dr. E. J. Perkins last year collected branches of Douglas Fir in a wild forest in Oregon which were badly infested with a Chermes indistinguishable from *C. Cooleyi*. The gall form of the insect is common on Sitka Spruce in Oregon, Washington, and British Columbia, and on *Picea pungens* and *P. Engelmanni* in the Rocky Mountains.

10. *Rate of Growth.* The two Douglas Firs differ remarkably in their rate of growth. The Colorado species at all ages is much less in height and diameter. It attains on an average about half the height of the Oregon species, both in America and in cultivation in this country. The following figures for forest trees on good soil in the United States illustrate this:—*P. glauca*, in the Rocky Mountains, eastern Idaho, 54 feet high, at seventy years old; *P. Douglasii*, in western Washington, 106 feet in height, at the same age. The diameters of the trees in Idaho at fifty, sixty, and seventy years old are half those in Washington at the same ages. Young plantations in England are similar in their development, as will be seen from the measurements given below.

11. *Volume and Yield of Timber.* As may readily be deduced from the comparative rates of growth in height and diameter, the volume of timber produced by the two species is extraordinarily different in amount. The Pacific coast tree exceeds in yield of timber per acre four to ten-fold the Colorado Douglas Fir. This will be illustrated in the following account of the behaviour of the two species under cultivation in plantations in this country.

12. *Silviculture.* The Colorado Douglas Fir has been tried as a forest tree in several places in Great Britain, but has invariably proved a failure.

[1] It was first seen by Mr. A. C. Forbes and Professor A. Henry on trees in the New Forest in July, 1913. It has since been observed near East Grinstead (Sussex), Petersfield and East Liss (Hants), Buckhold (Berks), and Bagley Wood (Oxon).

The tree is healthy enough, but is of no commercial value for planting, as its lack of vigour and slow growth render it useless for the production of timber. It has been recommended for shelter at high altitudes, as it bears exposure well, but in our climate Sitka Spruce will prove much superior for this purpose.

The Colorado Douglas Fir was largely planted in mixture with European Spruce and Scots Pine about forty years ago on good forest soil at Durris, Kincardineshire, but proved unsuccessful as a timber tree. Growing more slowly than either companion species, it was nearly all suppressed before its thirtieth year.

At Buckhold, Berkshire, it is less vigorous than Scots Pine on clay soil overlying chalk at a considerable depth, and is regarded as a failure. Trees planted twenty-four years average 30 feet in height and 20 inches in girth. Oregon Douglas Firs alongside them, only nineteen years planted, have attained an average of 46 feet in height and 29 inches in girth.

The Colorado species makes very feeble growth on poor sand, as at Westwick in Norfolk, where a group of trees planted in 1902 were only 5 feet high in 1918. Close beside them, Oregon Douglas Fir, of the same age, was 35 feet high.

The comparative rate of growth is also well seen on good deep sandy soil at Highfield, East Liss, Hants, where Mr. J. S. Gamble, F.R.S., has made plantations of both species. In 1902, two acres were planted here with Douglas Fir and European Spruce, alternately and four feet apart. Over two-thirds of the area the Oregon species was used, and over the remainder the Colorado species. In 1919 the Oregon Douglas Firs, which had completely killed the Spruce, were fine trees, about 40 feet in height, and 6 to 30 inches in girth. The Colorado Douglas Firs, which will be suppressed in a short time by the Spruce, are now only 20 to 25 feet in height, and 3 to 15 inches in girth.

The difference in growth of the two species in England is perhaps best illustrated by the contiguous plots in Bagley Wood, near Oxford, where the soil consists of sand and stones, with a moderate admixture of loam. These plots, each $\frac{1}{2}$ acre in area and treated alike, were planted in the spring of 1907 with four-year-old trees, spaced at 4 feet apart. Early in 1919, twelve years from the time of planting, measurements were made by Sir W. Schlich,[1] as follows:—

Oregon Douglas Fir—2132 trees per acre, averaging 32 feet high and 3·4 inches in diameter; basal area, 140 square feet per acre; volume of timber, 1176 cubic feet per acre.

Colorado Douglas Fir—2466 trees per acre, averaging 16 feet high and

[1] *Quarterly Journal of Forestry*, xiii, 266 (1919).

24 inches in diameter; basal area, 83 square feet per acre; volume of timber 206 cubic feet per acre.

The differences in height, diameter, and volume observable in these two young plantations, which are both in perfect health, correspond with what is recorded of mature trees in their native forests. In the Oregon Douglas Fir plot all the grass and undergrowth have been killed, while in the other plot some bracken and bramble still survive. The needles of the Oregon species appear to decompose much more quickly than those of the Colorado Douglas Fir. Thus, though the total leaf-fall of the former must have far exceeded that of the latter, the foliar debris on the ground was only 1½ inches deep in the Oregon Douglas Fir plot, while it was 2 inches deep in the other plot. There is much less humus in the surface soil under the Colorado species than there is under the Oregon species.

The Oregon Douglas Fir is one of the most valuable trees that have been introduced. It produces in this country an enormous volume of excellent timber in a short period of time, being ready for felling at fifty or sixty years old. Grown in dense plantations it surpasses all other species in yield of timber. This great production is shown by the following table,[1] which gives actual measurements of plantations of Oregon Douglas Fir in Scotland, England, and Wales. These plantations have not been selected in any way; and some of them, owing to errors in initial planting and subsequent thinning, are insufficiently stocked, and show poorer yields than may be expected from plantations grown under better methods of silviculture.

Estate and County.	Age.	Number of trees per acre.	Mean height of dominant trees.	Volume of timber per acre over bark.	Average annual growth in volume per acre.
	Years	No.	Feet.	Cub. ft.*	Cub. ft.*
Bagley, Oxford, . .	12	2132	32	923	77
Llandinam, Montgomery,	28	347	66	5563	199
Tortworth, Gloucester, .	29	206	66	3690	127
Dunster, Somerset, .	33	350	74	4975	151
Tortworth, Gloucester, .	43	215	97	7316	170
Taymount, Perth, . .	52	149	88	6640	126
Cochwillan, Carnarvon, .	58	119	101	11080	190

* Quarter-girt measurement.

The Reconstruction Forestry Report, making a reduction of 30 per cent.

[1] See *Jour. Board of Agriculture*, xx, 1087 (1914).

for contingencies such as damage from wind, insects, etc , estimates the yield resulting from planting land of average quality with this species to be 7000 cubic feet at the end of sixty years. The early maturity and great volume of the Oregon Douglas Fir make it the most profitable tree to employ in afforestation schemes.

The Oregon Douglas Fir has certain disadvantages, and should only be planted in carefully selected areas. It suffers much from exposure to strong prevailing wind, and does not thrive in wet land or on heavy clay or gravelly soils. It has an aversion to lime diffused in the soil; but nevertheless makes considerable height and girth on chalk and limestone that are covered with a surface layer of humus, in such cases forming wide-spreading superficial roots. It is liable in the young stage to injury from spring and autumn frosts. These drawbacks limit considerably the area in which it can be commercially planted. It is a splendid tree in sheltered situations where the soil is moderately deep and not too wet. When not exposed to wind, it grows well enough at high elevations; plantations in Wales being successful in favoured spots up to 1250 feet. At Garmaddie, Balmoral, a plantation at 1100 feet attained in twenty-six years a height of 45 to 50 feet.

While attaining its maximum development on deep loamy sands, it thrives much better on poor sandy soils than is generally supposed. This is an important fact, as it renders profitable the afforestation of large tracts of poor heath land in England, which would yield only a slight return if planted with any other species or if put under the plough. In such soils it often establishes itself with difficulty, and looks yellow in foliage for a time; but this is generally a passing phase. Thus at Westwick, Norfolk, on poor sandy heath, where Larch and Scots Pine do not exceed in the best spots 60 feet high at eighty years old, plantations of Oregon Douglas Fir, that looked unpromising at first, are now very thriving, and average 40 feet in height at twenty years old. In Holstein, poor heath land,[1] on which Scots Pine and Spruce were subject to root-rot and failed, was successfully afforested with Oregon Douglas Fir, which in thirty years has grown to timber size.

IV.—ANATOMY OF THE LEAF.

The microscopical structure of the leaf has proved useful in the discrimination of species in various genera of conifers, notably Abies[2] and Pinus.[3] In a paper lately read before this Academy, we found the leaf

[1] *Trans R. Scott. Arbor. Soc.*, xxii, 235 (1909).

[2] M'Nab, in *Proc. Roy. Irish Acad.*, ii, 673 (1876).

[3] Masters, in *Journ. Linn. Soc. Bot.*, xxxv, 560–659 (1904), and Shaw, *The Genus Pinus* (1914).

anatomy of great service in establishing the distinctive characters of the European and Japanese species of Larch and their hybrid; and one of the characters investigated, the papillate epidermal cells, seemed to explain the great capacity of the Japanese Larch in bearing shade. The adaptation of species to their environment may evidently be elucidated by a study of the comparative anatomy of the leaves, which are the organs of photosynthesis and transpiration—functions that are considerably affected by climate.

This is well seen in the various species of Douglas Fir, which inhabit regions characterized by great diversity in the humidity of the air, the quantity of sunlight, and other climatic factors. In fact, no two species agree in the structure and shape of the leaf. M'Nab was the first to investigate these characters in the American Douglas Fir, only one species of which was recognized at the time, and conjectured from the sections of the leaves at his disposal that there were two distinct species.[1] These two species, the Oregon and Colorado Douglas Firs, indeed reflect in the structure of their leaves the great dissimilarity of the climates of the Pacific Coast and Rocky Mountains regions.

All the species, except the Formosan Douglas Fir, have now been examined, and transverse sections of the leaves under the microscope show considerable differences, which will now be pointed out.

1. *Shape.* The leaves of the different species vary in the relative proportion of their dimensions in thickness and width. Thick leaves present less surface to evaporation, and are characteristic of xerophytic conditions. The Colorado Douglas Fir has very thick leaves, convex on the lower surface, and glaucous above and beneath owing to a thin film of wax, which is protective against heat and drought. All these characters indicate a dry, sunny, hot climate. Most of the other species have thin leaves, flat beneath.

2. *Papillae.* In *P. glauca* and *P. macrocarpa* all the epidermal cells are papillate, but in the other species the epidermal cells of only the lower surface bear papillae. Various explanations of the functions of these papillae have been given, notably Professor H. H. Dixon's that they allow more light to enter into the leaf, where it is available for photosynthesis. Leaves with all the epidermal cells papillate are probably able to bear shade well. This would be an advantage in regions subject to long periods of drought, as such leaves persist long on the branches, forming on the tree a thick crown of foliage that protects the soil from evaporation, and keeps it moist. It would be of interest to ascertain whether *P. glauca* and *P. macrocarpa* bear dense

[1] M'Nab, in *Proc. Roy. Irish Acad.*, ii, 703, plate 49 (1876). Fig. 32 represents *P. Douglasii*. Figs. 32a and 32b represent *P. glauca*.

protective foliage in the Rocky Mountains and in southern California respectively—regions notable for their long, dry, and hot summers.

3. *Hypoderm.* A layer of thick-walled hypodermal cells is practically continuous all round the leaf in *P. glauca*, *P. macrocarpa*, and *P. sinensis*. It is present only in the central part of the leaf in *P. Douglasii*, *P. japonica*, and *P. Forrestii*. The continuous hypoderm seems to be a xerophytic character, the three species in which it is present all living in dry regions. In *P. Douglasii*, var. *caesia*, which is more xerophytic than the type, hypoderm is a little developed elsewhere than in the centre of the leaf.

4. *Idioblasts.* These are peculiar stellate or irregularly radiate cells, which ramify between the ordinary parenchymatous cells in the leaf. They are hollow, with thick walls and narrow lumina running up the arms of the star. In 1876 M'Nab discovered idioblasts in the leaves of the Rocky Mountains Douglas Fir, but could not find them in the Pacific Coast species. In the present investigation M'Nab's observations have been confirmed; and the idioblasts have been proved by various chemical tests to be formed of lignin. They have been found to be most numerous in *P. glauca*, rather abundant in *P. japonica*, *P. sinensis*, and *P. Forrestii*; very few in *P. macrocarpa* and *P. Douglasii*, var. *caesia*; and totally absent in typical *P. Douglasii*.

The significance of idioblasts is obscure. The term idioblasts was originally applied by Sachs to individual cells strikingly different from their neighbours; and he named hard thick-walled idioblasts, such as those now described, stone-cells or scleroblasts. Haberlandt[1] refers to these as astrosclereides.

Idioblasts are not confined to Pseudotsuga, as they occur in other conifers and in ordinary flowering plants. As to their function, several theories have been brought forward. One theory is that they act as water reservoirs. This is supported by the fact that they largely occur in xerophytic plants; but in opposition to this it may be pointed out that the amount of water they could store would be very small, and that the plant would have difficulty in extracting the water for use. Sachs, indeed, says that they have such thick walls that their contents are of little physiological importance.

Another view, supported by De Bary,[2] Haberlandt, and Bower,[3] is that idioblasts act as scaffolding to strengthen the leaf and keep it distended and of a leathery consistence. It is difficult to see, however, how they would act as a skeleton, when for the most part they are embedded in the substance of the leaf, are widely separated from one another, and do not extend to the

[1] *Physiological Plant Anatomy*, 158 (1914).
[2] *Comparative Anatomy*, 424 (1884).
[3] *Botany of the Living Plant*, 144 (1919).

epidermis. Another suggestion is that idioblasts are protective, rendering the leaf unpalatable to weevils, beetles, etc.

5. *Resin-Canals.* Two marginal resin-canals are present in the leaf in all the species, the only difference noted being that they are surrounded with one layer of lining cells in *P. japonica* and *P. sinensis*, and with two layers in the other species.

6. *Mesophyll.* In the two Chinese species the cell-walls of the spongy mesophyll are infolded. This is not observable in the other species.

7. *Median Groove.* The groove on the upper surface of the leaf in the middle line is well marked, and continuous from base to apex in *P. Douglasii*, *P. japonica*, *P. sinensis*, and *P. Forrestii*. It is slight and not continuous to the apex in *P. glauca* and *P. macrocarpa*.

V.—The Oil Distilled from the Leaves.

The difference in the odour of the foliage of the Oregon and Colorado Douglas Firs is remarkable and distinctive of the two trees.[1] The fragrance of the Oregon species is agreeable, with a scent like pine-apples. The Colorado species has a strong smell like turpentine. The odour is perceived near large trees and in plantations in certain states of the atmosphere, and can always be recognised by rubbing the fresh leaves between the fingers, or by placing a branch of foliage in a vessel of water indoors, when the room soon becomes filled with the characteristic perfume.

The leaves of coniferous trees in general yield on distillation peculiar oils, which are often of commercial value. The characteristic odour of each species is doubtless due to the nature of the oil in the leaf. In order to test this, quantities of the foliage of the two Douglas Firs were sent to Mr. C. T. Bennett, B.Sc., F.I.C., who has kindly supplied the following details of analysis of the oils distilled in the laboratory of Messrs. Wright, Layman, & Umney, Ltd., Southwark, London, S.E.:—

"*Oregon Douglas Fir.*

"1. 59 lbs. of leaves of young trees growing at Avondale, sent in August. When distilled, less than 0·01 per cent. of an oil with a very aromatic odour was obtained—a quantity too small for examination.

[1] Attention was first drawn to the distinctive odours of the two Douglas Firs by Mr. V. C. Le Fanu, of Ballymorris, Bray. Dr. Jacobi wrote in *Mitt. Deutsch. Dendr. Ges.*, 1914, p. 284, on the fragrance of the Oregon species as affected by the different states of the atmosphere.

"2. 50 lbs. of leaves of old trees growing at Buckhold, Berks, sent in November, when distilled, yielded 0·11 per cent. of oil, having the following characters:—

Specific gravity,	0·876
Optical rotation,	−7°
Refractive index (20°),	1·4835
Esters as bornyl acetate,	12·4 per cent.

"The ester-content is much lower than that of the Colorado Douglas Fir oil, but the odour is more fragrant. The oil contains dipentene or limonene, but if pinene is present, the quantity is very small, as practically nothing distils below 175°.

"3. A few days later another 50 lbs. of leaves of the Oregon Douglas Fir from Buckhold were distilled, and enough oil was then available for further investigation. On fractionating the oil, an appreciable quantity of geraniol was separated, and this appears to be the chief odorous constituent. The proportion of total alcohols by acetylation, calculated as geraniol, is 31·5 per cent. The presence of bornyl acetate somewhat masks the odour of geraniol in the original oil. There is also a small trace of citral, but the proportion is too small for determination.

"Geraniol occurs in the oils of some species of Callitris in Australia, but has not been apparently recorded as a constituent of the oils distilled from other conifers. Geranoil is the chief constituent of Indian palmarosa oil obtained from the fragrant grass, *Andropogon Schoenanthus*, and occurs in citronella oil, otto of roses, lemon oil, etc.

"*Colorado Douglas Fir.*

"50 lbs. of leaves of moderate-sized trees growing at East Liss, Hants, sent in October, yielded on distillation 0·31 per cent. of oil.

Specific gravity,	0·905
Optical rotation,	−46°
Refractive index (20°),	1·4717
Esters as bornyl acetate,	34·5 per cent.

"The terpenes consist principally of pinene. The odour is chiefly due to the bornyl acetate present.

"It would appear from these analyses that the strong odour of Colorado Douglas Fir, which is like that of turpentine mixed with camphor, is due to the large percentage of pinene and bornyl acetate. In

the Oregon Douglas Fir pinene is not present, and the bornyl acetate is much less in percentage. The peculiar fragrance is chiefly due to the presence of the highly odoriferous substance geraniol, slightly modified by the small amount of bornyl acetate present."

Two previous analyses of the leaves of Douglas Fir are on record:—

Brandel and Sweet[1] examined foliage of Oregon Douglas Fir collected in Washington State, and found a yield of 0·8 to 1 per cent. of oil; no pinene present, the main constituents being terpenes, of which the principal fraction, boiling at 161° to 169°, contained camphene. A small fraction, boiling at 175° to 176°, was thought to be limonene. The higher boiling fraction contained bornyl acetate.

This analysis agrees with English-grown Oregon Douglas Fir in the absence of pinene and in the small quantity of bornyl acetate present.

Schorger[2] made an analysis of foliage of Douglas Fir, gathered in the southern part of the Sierra Nevada, California, which yielded on distillation 0·163 per cent of oil, with specific gravity of 0·873 to 0·876, optical rotation of −17° to −22°, and containing:—

α-pinene, ...	25	per cent.
β-pinene, ...	48	„
limonene, ...	6	„
bornyl acetate, ...	6·1	„
borneol, ...	6·5	„
unidentified green oil, . .	3	„
loss.	5	

This analysis would indicate an oil agreeing with Colorado Douglas Fir in the presence of pinene; but in contains much less of the higher boiling esters.

It is evident that further investigation is required on the odours and oils of the different species and varieties of Douglas Fir in America.

It is worthy of note in this connexion that the different forms of the Yellow Pine in western North America, which closely resemble the various Douglas Firs in their distribution, yield each, on tapping their stems, an oleo-resin, which contains a different oil.[3] Typical *Pinus ponderosa*, with moderate-sized cones occurring in the same region as the Oregon Douglas

[1] *Pharmaceutical Review* (Milwaukee), Nov. 1908, p. 326.
[2] *Journ. Amer. Chem. Soc.*, xxxv, p. 1895 (1913).
[3] A. W. Schorger, in *Proc. Soc. Amer. Foresters*, xi, 32-39 (1916).

Fir and its var. *caesia*, yields an oil, consisting mainly of Beta-pinene. *Pinus ponderosa*, var. *scopulorum*, with small cones, a native of the Rocky Mountains from eastern Montana southwards (the region of *Pseudotsuga glauca*), yields an oil consisting mainly of Alpha-pinene *Pinus Jeffreyi*, with very large cones, occurring in southern California in the same region as *Pseudotsuga macrocarpa*, yields an oil totally different from the two preceding trees, containing 95 per cent. of heptane. The analogy in the distribution, size of the cones, and different oils of the Douglas Fir and Yellow Pine is very striking.

NOTES BY PROFESSOR A. HENRY.

The microscopical details, and the drawings of the leaf-sections, flowers, cone-scales, &c., are due to Miss Flood. I am much indebted to Mr. C. T. Bennett, B.SC., F.I.C., for his investigation into the oils obtained from the Oregon and Colorado species. Help in providing material for study and in other ways was obligingly rendered to me by Mr. J. S. Gamble, F.R.S., Dr. Herbert Watney, Mr. W. E. Hiley, Mr. V. C. Le Fanu, Prof. Sir I. B. Balfour, F.R.S, and Prof. W. G. Craib, M.A.

NOTE ADDED IN PRESS.

Note to p. 75.—With regard to the size attained by the Douglas Fir in the southern Rocky Mountains, Wooton and Standley, "Flora of New Mexico," state that the tree sometimes reaches a height of 200 feet, with a diameter of 6 to 7 feet. This is probably an over-estimate. Mr. G. B. Sudworth has just written to me from Washington that eleven of the largest trees measured in the Lincoln and Datil National Forests, New Mexico, attained heights of 97, 130, 126, 111, 112, 114, 127, 137, 143, 128, and 150 feet. Some of these trees are considerably taller than any recorded from Utah or Colorado, the highest measured in Utah being 119 feet, and in Colorado, 115 feet.

[EXPLANATION OF PLATES.

EXPLANATION OF PLATES.

Plate XII.

Seed-scale, *a*; bract, *b*; and seed, *c*; all × ¾, of ripe cones of—1, *P. Douglasii*; 2, *P. glauca*; 3, *P. Douglasii*, var. *caesia*; 4, *P. macrocarpa*; 5, *P. sinensis*; 6, *P. Forrestii*; 7, *P. japonica*.

Young cones of 8, *P. glauca*; and 9, *P. Douglasii*.

a, female flower, × ⅜.

b, *c*, *d*, bracts from centre, base, and apex of the cone, × ¾.

e, ovular scale, × ¾.

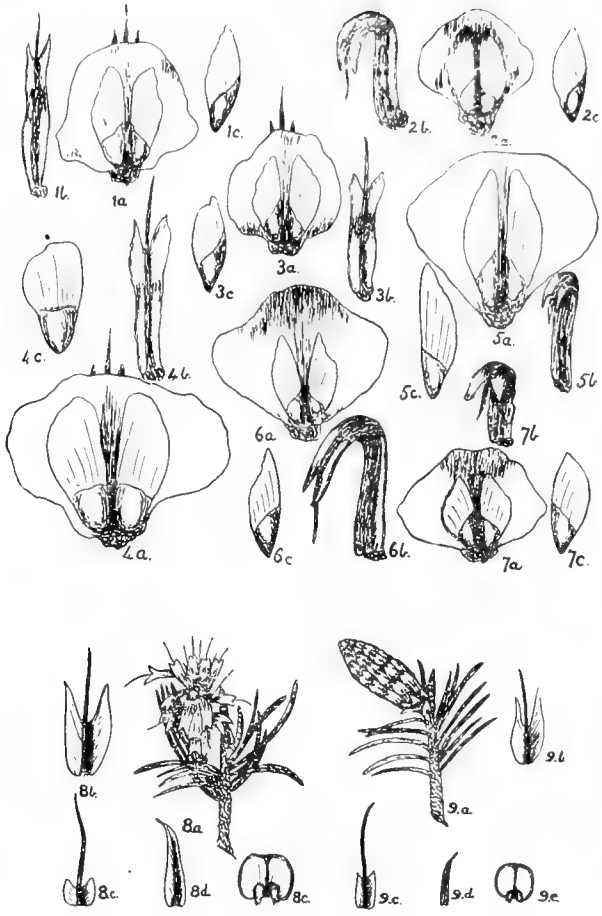
Mature cones, × 1, reproduced from photographs, of *Pseudotsuga Forrestii*, *P. japonica*, and *P. sinensis*.

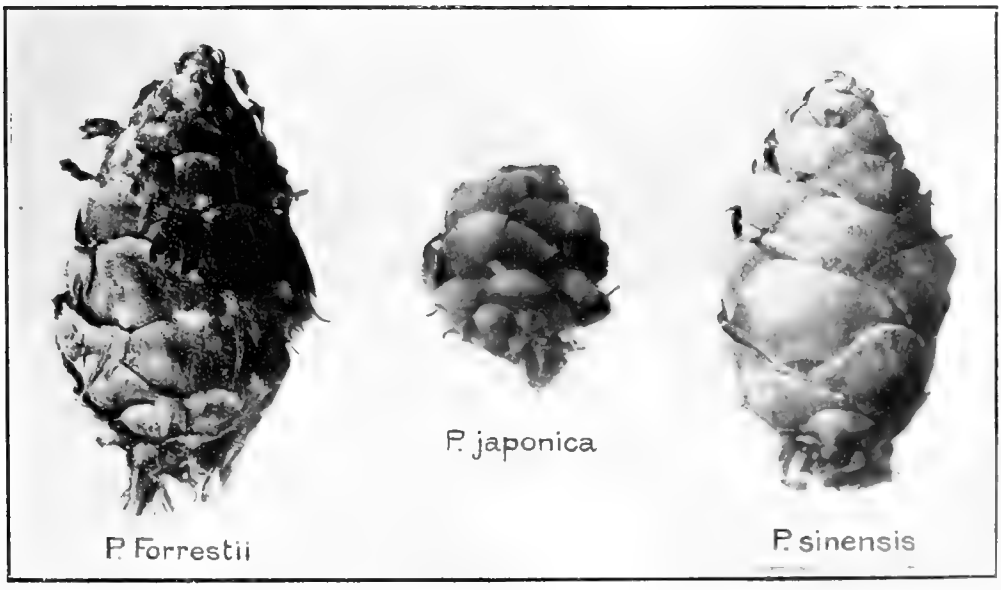
Plate XIII.

Mature cones, × 1, reproduced from photographs, of *Pseudotsuga macrocarpa*, *P. Douglasii*, *P. Douglasii*, var. *caesia*, and *P. glauca*.

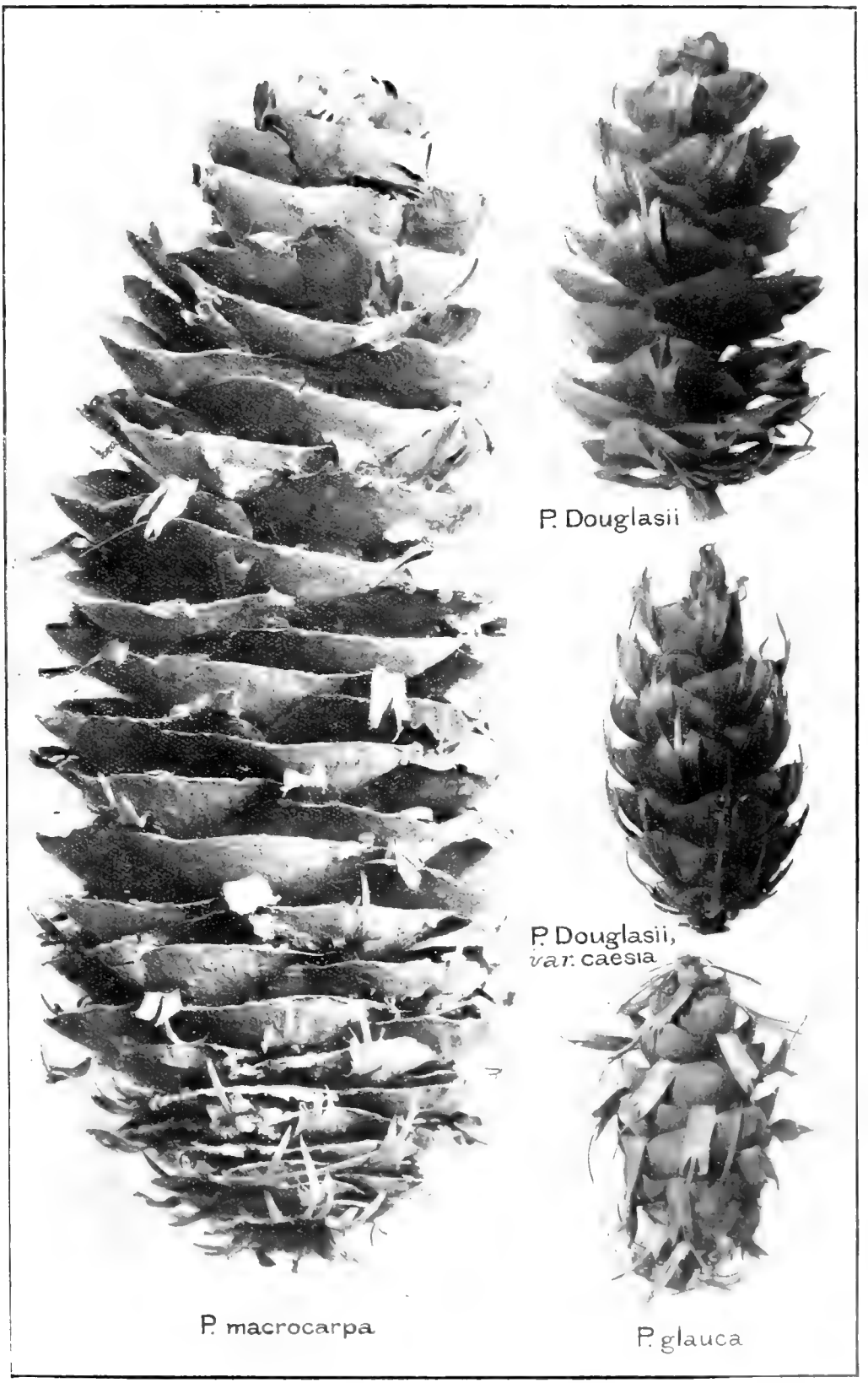
Plate XIV.

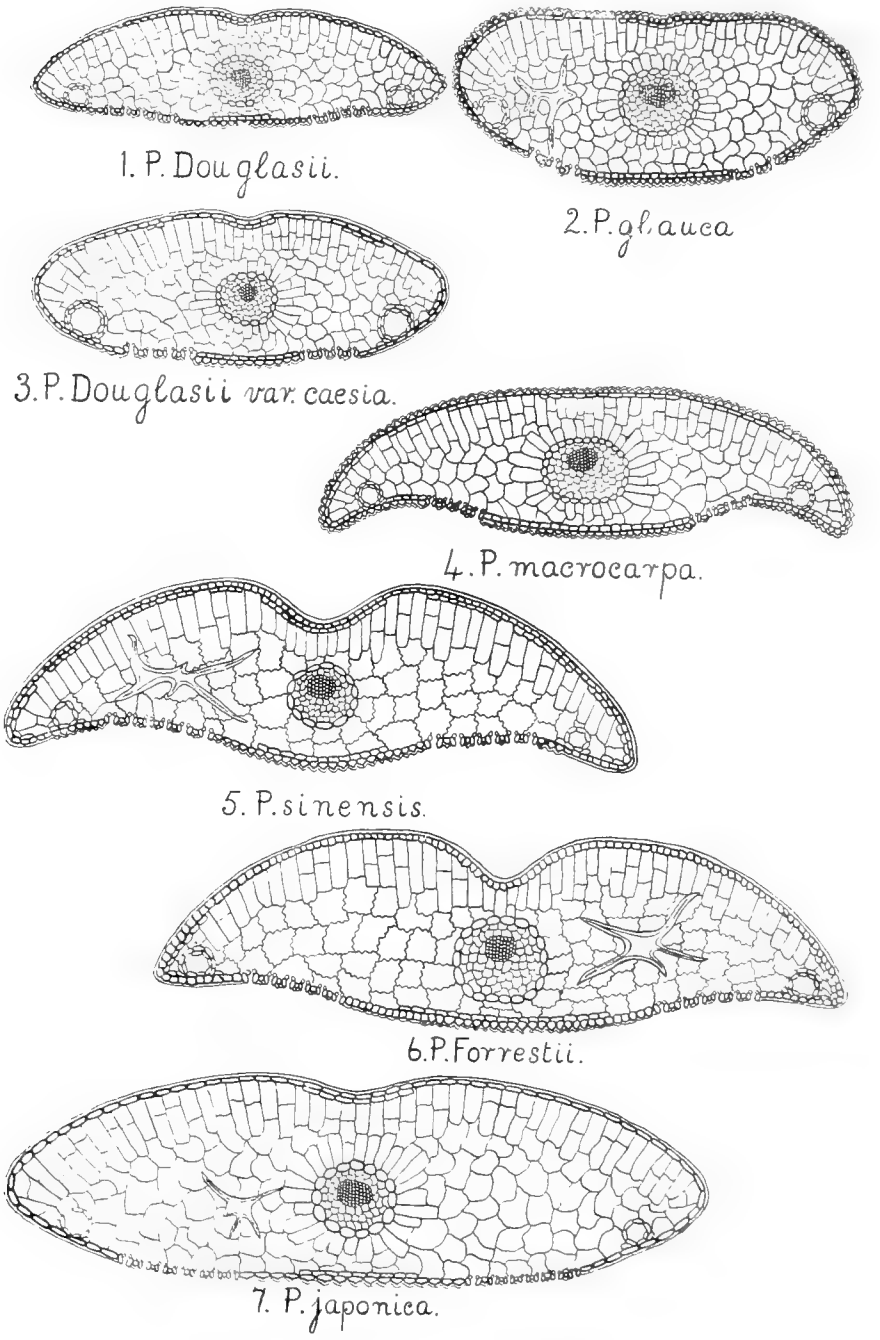
Transverse sections of the leaves, × 40, of—1, *Pseudotsuga Douglasii*; 2, *P. glauca*; 3, *P. Douglasii*, var. *caesia*; 4, *P. macrocarpa*; 5, *P. sinensis*; 6, *P. Forrestii*; 7, *P. japonica*.





Henry and Flood.—The Douglas Firs.


P. Douglasii
P. Douglasii,
var. caesia
P. macrocarpa
P. glauca



Henry and Flood.—The Douglas Firs.

VI.

MINOR PERIODICITY IN GLACIAL RETREAT.

By W. B. WRIGHT.

[COMMUNICATED BY PERMISSION OF THE DIRECTOR OF THE GEOLOGICAL SURVEY OF IRELAND.]

PLATE XV.

[Read JANUARY 12. Published MAY 19, 1920.]

THOSE who are well acquainted with the Highlands of Scotland will have recognized that, generally speaking, the moraines of that mountain district do not assume any pronounced linear arrangement. In most cases there is nothing but a wild profusion of irregularly scattered mounds. The areas which have come within the scope of my own observation show this condition of things as the normal type of lowland and valley-bottom topography. Here and there, it is true, a rude linear arrangement can be detected by a careful observer, but it seldom has any persistence, and is mostly confined to the mountain slopes. There must of course be cases of well-marked linear moraines here and there in the Scottish mountains—indeed, photographs have been published which show them—but they are the exception rather than the rule, and do not invalidate the generalization that the prevailing type of morainic topography is irregular in character.

To this condition of things the mountains of Kerry form a notable contrast. The moraines, which almost everywhere cover the lowlands at the foot of the mountains, show a persistent and well-marked linear arrangement, and often form unbroken ramparts many miles in length. They are arranged, moreover, in concentric series one within the other, the intervening intervals being free from moraine, or only covered by a thin deposit, not rising into mounds. I can see nothing in the topography of the Kerry mountains as compared with the Highlands of Scotland which would lead one to ascribe this difference to local circumstances, and have so come to believe that the two types of morainic formation are in some way an expression of different climatic conditions during the retreat of the ice.

The glaciation of the mountains of Iveragh and Dunkerron was effected in the main by ice from a centre of distribution in the low country west of Kenmare. The demonstration of this need not be included here. It is

given in full in the "Memoir on the Geology of Killarney and Kenmare," now ready for the press. The map (fig. 1) shows the main lines of flow. Carrantuohill, The Reeks, Purple Mountain, and Mangerton, in spite of their superior altitude, contributed but little to the main ice-sheet. The glaciers which they nourished on their slopes were of diminutive size, and melted

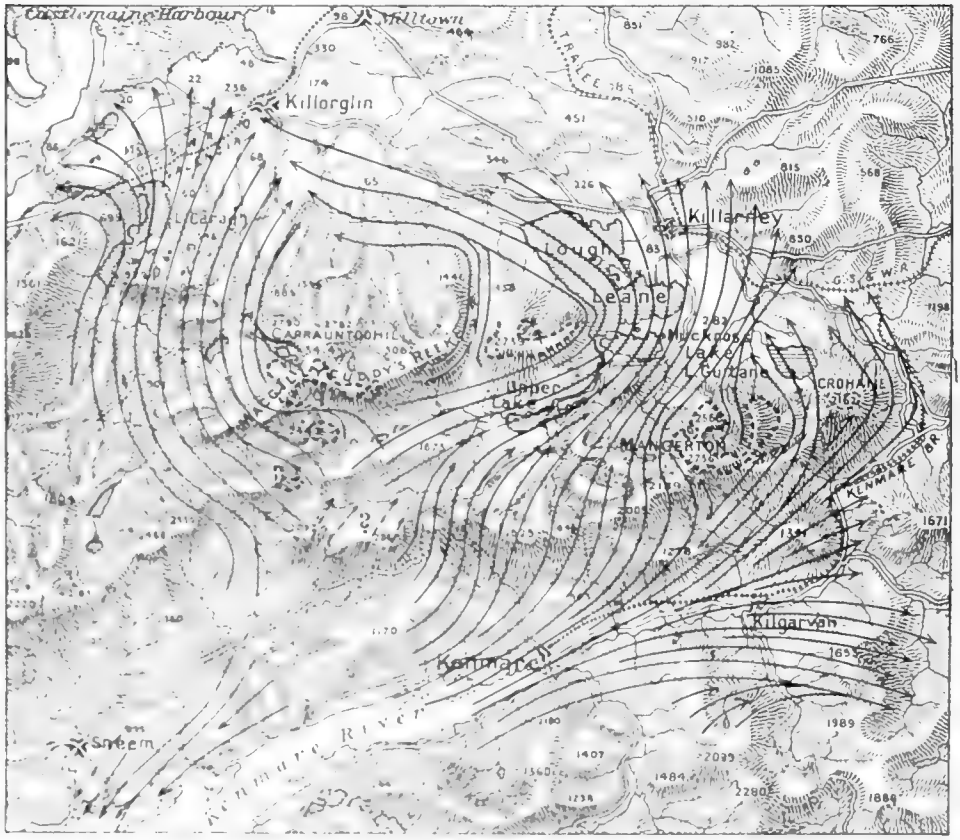


FIG. 1.—Map showing the main Ice Movement and the remnants of the Preglacial Upland in the Kenmare-Killarney District. The movement in the areas outside the arrows has not been investigated.

away at an early stage of the retreat. These ranges stood out as nunataks above the general level of the ice, and, where the corries have not eaten too far into their sides, preserve a good deal of their pre-glacial form and surface.

The passes between these higher summits were, however, very heavily glaciated, and suffered to a remarkable degree from plucking and scouring.

They offered to the outflowing ice from the Kenmare centre five main avenues of discharge towards the north. These were from west to east—(1) the Caragh Valley; (2) the Gap of Dunloe; (3) the Killarney Valley; (4) the valley of the Cappagh River and Lough Guitane; (5) the valley of the Loo and Flesk. The ice tongues which occupied these passes, and thence deployed on to the northern lowland, will in this paper be referred to as the Caragh, Dunloe, Killarney, Guitane, and Flesk glaciers respectively. The existence of the Guitane and Flesk glaciers was cut short at an earlier stage of the retreat than that of the Caragh, Dunloe, and Killarney glaciers, because the passes through which they were fed lay at a greater distance from the centre of distribution. The history of the retreat subsequently to the abandonment of these passes is recorded in the valley of the Roughty River, east of Kenmare. The greater part of the retreat of the ice-margin as it shrank from the plain into the passes, and from the passes south and west to the ice-shed seaward of Kenmare, is characterized by a marked periodicity. It is clearly a matter of great interest to inquire into the nature of this periodicity, and get some idea of the duration of the oscillations which it indicates. One might express one's aim in such an investigation as being an attempt to determine a climatic "grain" as characteristic of a definite period of late glacial time. In addition to the obvious importance of comparing the minor climatic variations of such a distant period with those of the present day, there is the possibility of correlation with other areas, where the retreat shows a similar character.

As the evidence upon which the tentative conclusions of the present paper are based is most clearly defined in the Kenmare Valley, it will be necessary, before proceeding to the main issue, to describe in some detail the conditions which obtained in this area during the retreat.

Ice-dammed Lakes of the Kenmare Valley.

During the whole period of the retreat of the ice-front from Morley's Bridge on the east to the ice-shed west of Kenmare the drainage of the Roughty Valley was entirely reversed and discharged along the line of the railway *via* Morley's Bridge and Loo Bridge into the valley of the Flesk. This obstruction of drainage resulted in the formation of a glacial lake, the surface of which lay at a level of 320 feet O.D., determined by the height of the outlet at Morley's Bridge The marginal terraces and embankments of this lake form one of the most striking features of the valley, and in distinctness and massiveness rival those of Glen Roy and Glen Spean (see Plate XV). They prove the lake to have had during its greatest extent a length of at least twelve miles, and throughout this distance show no departure from

horizontality, which is not included within the limits of error inseparable from such observations of level as it has been found possible to make.

The definiteness and well-marked character of the shoreline of this sheet of water, which may conveniently be referred to as Lake Kenmare, is without doubt largely due to its constancy of level. The sill of the outlet is composed of very hard rock, and has not been appreciably lowered by the outflowing waters. The steep-sided pass through which the discharge took place is a very remarkable feature of the district, but in no sense owes its origin to glacial drainage, or even to the excavating action of ice. Its course, far from being coincident with the trend of the ice-motion, is in one place directly transverse to it. The floor has, nevertheless, been everywhere plucked and scoured by the passing ice. The effect of the outflowing waters of the lake is only noticeable as a slight erosion and potholing of these ice-moulded rocks.

During the initial stages of Lake Kenmare, while it was still only a mile or two in length, a small lake was also impounded in the pass at Derrincullig, about three miles north of Kilgarvan. This small lake formed a well-marked terrace on its northern shore. In the Slaheny Valley, south of Kilgarvan, there was a somewhat larger lake, the surface level of which is recorded in some terraces in the valley of the Glashagorruv River, above Glanlough. The outlet of this lake was eastward through the beautiful dry gap of Crumagloun into Lake Kenmare.

Connexion between the shore-embankments of Lake Kenmare and the marginal drainage.

On examining the arrangement of the gravel terraces along the shore-line of Lake Kenmare, it becomes at once apparent that the materials of which they were built up were derived in the main from the lateral drainage of the ice-sheet. As evidence of this, it is clear in the first place that, if the terraces were produced by ordinary shore action and the inwash of streams, they ought to be increasingly more massive and better defined towards the eastern end of the lake, which was longest in existence. A glance at the map will show that this is not the case, the terraces at Caher, half way between Kilgarvan and Kenmare, being just as well developed as any further east. Moreover, many streams which poured into the lake have made no deltas at their point of discharge. For example, the Owbeg River, north of Kilgarvan has built up no delta at Meelick, where it reached the level of the lake, whereas a small lateral tributary of this river to the west of Meelick has an immense plateau of gravel in the lower part of its valley. On the south side the Slaheny River formed no delta, whereas its tributary on the west, the

Glashagorruv, has an imposing delta about a quarter of a square mile in extent. The hill slopes to the north of Kilgarvan, and thence east to Morley's Bridge, show only a few insignificant traces of terraces, and yet there were at this point a number of small streams descending into the lake.

Perhaps the most remarkable proof of the importance of the glacial drainage in the building of the lake terraces is the fact that in the Slaheny and Owbeg Valleys the terraces occur only on the western side of the valleys, and are almost completely wanting on the eastern. The gravel and sand carried along by the marginal streams were brought to rest at the lake level in these valleys, and so travelled no further towards the east. The slopes of the main valley immediately east of these laterals are devoid of terraces for the same reason.

Some very striking and instructive phenomena bearing on this point are to be observed in the valley of the Cleady River, three miles north-east of Kenmare. The lake terraces in this valley can be traced into a massive series of gently sloping fluvio-glacial terraces, which continue up the western branch of the river towards Gowlane, but are completely wanting on the northern branch, which comes down from Coombane. The western branch, along which the terraces occur, is found to occupy throughout part of its course a glacial drainage channel, and this channel can be followed over the pass to the south-west of Gowlane at an altitude of 500 feet, and along the slopes of Peakeen in the direction of Carrig East. It is clear from a consideration of contours that the marginal drainage must have gone along this channel and over the pass by Gowlane from the time when the ice-front first set free the mouth of the Cleady Valley until it sank to the 500-foot level on the western slope of Strikeen. Immense quantities of sand and gravel were thus transported along this route into the western branch of the Cleady River, and there, being checked by the waters of the lake, built themselves out into great fluvio-glacial fans.

The terraces of Lake Kenmare, when followed westward, appear at first sight to come to an end at Cleady. One might conclude that, when the ice had retreated thus far, the lake had for some reason ceased to exist, were it not that there is a well-developed group of terraces at exactly the right level of 320 feet below Letter in the headwaters of the Finnihy River. These prove that the lake must in its later stages have had a considerable extension to the west of Cleady. Why, then, are there no terraces along the slopes from Cleady to Strikeen, and thence north-west as far as Letter? The reason is clear once it is recognized that the marginal drainage is essential to the building of the terraces. From Cleady to Strikeen they are wanting because, as has been pointed out above, the drainage during this period of the retreat went over

the pass at Gowlane into the headwaters of the Cleady River. They are absent along the north-eastern slopes of the Finnihy Valley because, when once the ice withdrew from Strikeen, it admitted the lake to the headwaters of the Finnihy, and the gravel brought east by the marginal drainage was checked at this point, and built up the terraces at Letter.

From the above considerations and a multitude of other details which it is impossible to discuss here, it will be seen the shore embankments of Lake Kenmare are really part of the marginal deposits of the ice-sheet re-arranged by the lateral drainage, and brought to rest at the level of the lake.

Retreat Stages in the Kenmare Valley.

A careful examination of the valley of the Roughty River, between Kenmare and Kilgarvan, reveals the fact that it is crossed by a series of belts of mounds sand and gravel, sometimes associated with massive shore embankments. These together form broken barriers across the valley beneath the level of the shores of Lake Kenmare. They occur at fairly regular intervals of about a mile or a little more. Only four or five are really well defined, and stand out as striking objects; but by fitting in the evidence in the lateral valleys with that in the main valley, it is possible to distinguish as many as nine in the nine-mile stretch of valley between Morley's Bridge and Kenmare.

When followed above the shores of the glacial lake these gravel barriers are found to pass into normal clay moraines, so that it is clear that in the bottom of the valley they are really water-sorted moraines. Moreover, above the shore-lines of the lake another interesting fact becomes apparent. The morainic barriers are composite, consisting either of a group of smaller moraines, or of one large moraine with a terraced face. There is thus a double periodicity in moraine formation during the retreat, the larger stages of moraine formation, with inter-spaces of about a mile, being punctuated by smaller stages with intervals of, perhaps, 50 or 100 yards. It is not possible to determine how many of the minor moraines correspond to one of the major stages, but the sub-division is very obvious. It is most clearly visible on the slopes south of Mangertonbeg, on the north side of the valley, and on the upland between Letter and Slaheny on the south side.

Time-values of the Major and Minor Periodicities.

The idea at once suggests itself that the minor oscillations thus recorded are yearly, and that the larger stages represent a climatic oscillation extending over a number of years. Confirmatory evidence to this effect is afforded by a small but well-defined esker ridge on the shore to the south

of the Great Southern Hotel, Kenmare. De Geer[1] has shown that each of the individual hillocks or gravel centres, of which the eskers studied by him in Sweden are composed, is equivalent to two of the seasonal laminae in the laminated clays in that country, and so represents in general a year's retreat. The esker south of Kenmare is about 600 yards long, and contains seven or eight of these hillocks. The rate of retreat thus indicated is about 80 yards per annum. The larger interval marked by the transverse gravel and moraine belts, between which the esker is situated, can only be roughly estimated as from $1\frac{1}{4}$ to $1\frac{3}{4}$ miles in length. This gives approximately an upper limit of forty and a lower limit of twenty years for the length of the period represented by the gravel barriers and the intervening intervals. The mean of thirty years is comparable with the average length of the climatic

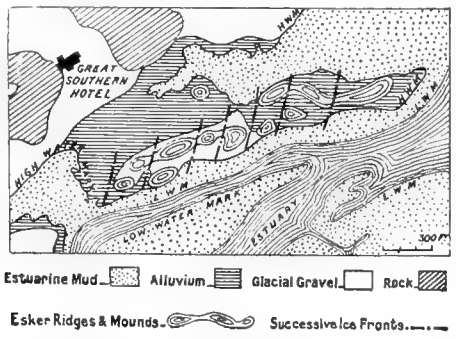


FIG. 2.—Sketch Map of the Esker Ridge, to the south of Kenmare, showing the subdivision into annual mounds. The ridge is double throughout the greater part of its length, on account of the subglacial stream having discharged by two orifices at the glacier front.

periods established by Brückner[2] within which a dry and warm epoch is succeeded by an epoch of lower temperature and greater precipitation. In dealing with the interpretation of this esker as affording an indication of time-values, it is clearly of importance to take into account its position relative to the preceding and succeeding periods of moraine formation. The first point to be noted in this connexion is that moraine formation at this stage of the retreat is very ill-defined. The preceding period is weak, and the succeeding period almost untraceable, and clearly the last of the series. The rate of retreat was, therefore, probably becoming equalized as between

[1] Gerard de Geer: "A Thermographical Record of the Late Quaternary Climate" in *Die Veränderungen des Klimas*, Geol. Congress, Stockholm, 1910; "A Geochronology of the last 12,000 years," Geol. Congress, Compte Rendu, 1910.

[2] Ed. Brückner: Klimaschwankungen, p. 232.

the morainic and inter-morainic periods, so that the decision as to which of these periods the esker is to be ascribed to is of less importance than it might otherwise appear. An examination of the map (Plate XV) will show that it might be regarded as having been formed either in the last inter-morainic period or in the last morainic period, or partly in one and partly in the other. The probability is that it belongs to the morainic period, but that the belt uncovered during this period was about a mile wide, and thus comparable in length with the preceding inter-morainic period. It will appear from this that the assumption that the esker gives an average rate of retreat is a reasonable one.

It is interesting to note that the moraines of the Vaberg district in Sweden, described by Hedström[1], exhibit a similar periodicity. Three series of morainic ridges succeed one another from south to north in the following order :—

1. The Mölltorp Series.
2. The Vaberg Series.
3. The Forsvik Series.

There is an interval of 1 km. of moraineless country between the Mölltorp and Vaberg Series, and 2 km. between the Vaberg and Forsvik Series. The Forsvik Series contains some 16 parallel moraine ridges, of which the eight most southerly, which are the best exposed and most easily traceable, lie at distances of 100 to 225 m. from one another, with an average interval of 150 m. The ridges are all of small dimensions, having a breadth of about 15 m. at the base, and a height varying from 1 to 3 m. In spite, however, of their diminutive size, they are traceable with wonderful continuity across the country, receding north a little on the heights, and pushing south again in the valleys.

The Vaberg Series consists of 17 parallel ridges of height and dimensions similar to those of the Forsvik, and occurring at similar intervals. The details of the Mölltorp Series are not recorded.

That these moraines record the same climatic periodicity as those of the Kentmare Valley there seems little doubt. There is also a fair presumption that we are dealing here with the effects of Brückner's climatic oscillations. One is struck more than anything else, however, by the apparent rarity of cases in which such a record is displayed by the retreat-moraines of glaciers. In most glaciated districts phenomena of this kind are exceptional. In the Kerry Mountains, on the contrary, they are the rule, and are

[1] Herman Hedström : Om andmoräner och strandlinier i trakten of Vaberget. Geol. Foren. Forhandl. Bd. xxiii. p. 163 (1901).

characteristic of at least some portion of the retreat of nearly all the ice tongues I have had occasion to examine during the re-survey of this region.

Further Cases of Periodic Retreat in Kerry.

All the ice-tongues which deployed through the mountain passes on to the plain of Killarney and Killorglin have remarkable series of concentric moraines. The most striking case is that of Lough Caragh (see Fig. 3). Here there is a group of eight or nine moraine belts forming concentric rings about the northern end of the lough, which occupies the gap in the hills from which the glacier issued on to the plain. The outermost of these moraines at its east end is conterminous with the outermost moraine of the Glancuttaun glacier,[1] which also has a series of eight moraine belts. In this latter glacier the innermost belts are broken up into minor moraines, thus showing their composite nature. The retreat of these glaciers was not as rapid as that of the Kenmare glacier, as the eight retreat stages embrace a distance of only three to three and a half miles.

The glacier formed by the confluence of the Killarney and Dunloe glaciers extended west in its early stages until it met the confluent Caragh and Glancuttaun glaciers. After it parted company with these it formed a number of moraine belts. There is, however, so little regularity of development that it is not possible to estimate the number of retreat stages represented. Moreover, these moraines come to an end against the upland north of the valley of the Flesk, so that only the innermost of them circle completely round the basin of Lough Leane. The periodic nature of the moraine depositions of the great Killarney glacier is, however, well seen on the wooded slopes east of Muckross, and is also recorded in the series of fluvio-glacial terraces to the east of Killarney.

The Lough Guitane and Flesk glaciers have also rings of concentric moraines, but the stages of retreat seem to be fewer in number, and are less individualized.

The corrie glaciers of the Reeks, Purple Mountain, and Mangerton show a good deal of variation in the number of moraines they have left behind. The Coomloughra glacier, on the west side of Carrantuohill, deposited four moraines after it parted company with the Caragh ice-tongue. The arrangement of these moraines is shown in figure 4. The Gaddagh glacier has also left four moraines at intervals down its valley. The Curraghmore, Cummeennapeasta, and Alohart corrie glaciers only left one moraine each.

[1] A branch of the Caragh Glacier, the tongue of which became isolated during the retreat.

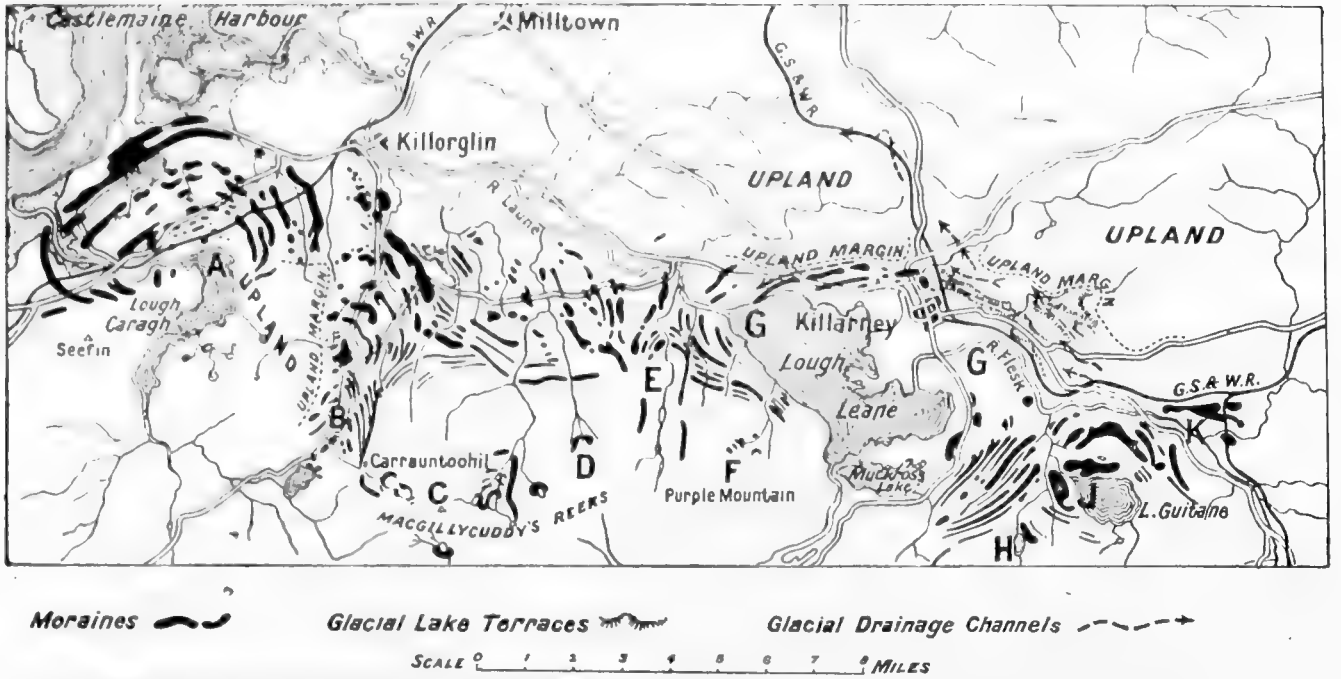


FIG. 3.—Sketch Map, showing the distribution of the terminal and lateral moraines on the Killarney lowland and in the adjoining mountains. No distinction is made between clay-moraines and gravel-moraines. This map covers the same area as the northern portion of Fig. 1. A. Caragh Glacier. B. Gneeuttaun Glacier. C. Glaciers of Carrantuohill, shown in detail in Fig. 4. D. Alohart Glacier. E. Dunloe Glacier. F. Purple Mountain Glacier. GG. Killarney Glacier. H. Horse's Glen Glacier. J. Lough Guitane Glacier. K. Flesk Glacier.

The tiny glacier that formed in the hollow S.-E. of Tomies Mountain left three or four moraines, one of which splits into three at one end, thus betraying its composite nature.

The Devil's Punch Bowl has only one moraine; the Horse's Glen also only one; but in the latter case the stages of final retreat may be marked by the three lake basins. It is difficult to say why some of the local glaciers show a periodicity in their retreat, while others do not. Possibly considerations of altitude and aspect may have something to say to it.

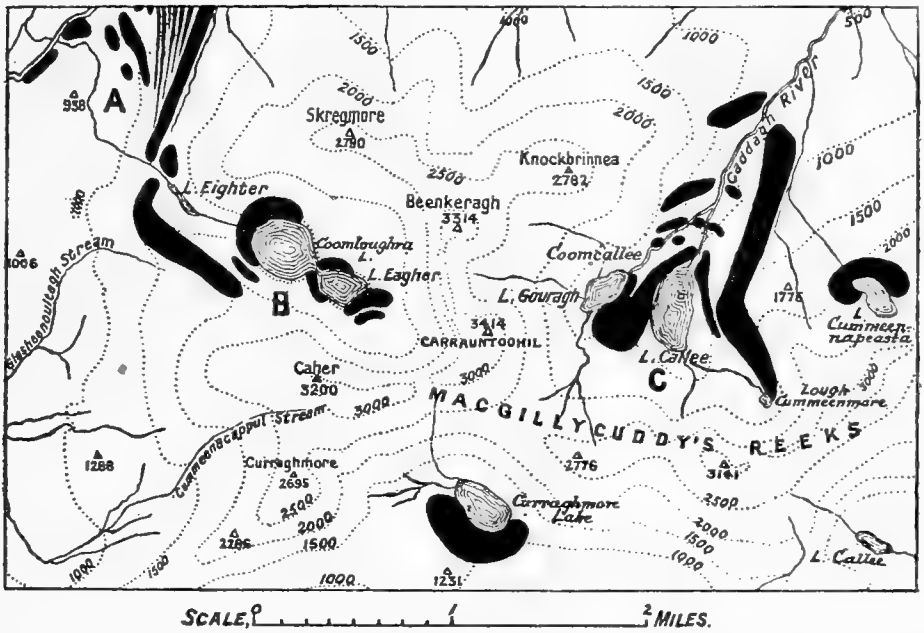


FIG. 4.—Map of Carrauntuohill and the western part of M'Gillicuddy's Reeks, showing the periodic moraines of the Corrie glaciers. A. Lateral moraines of the Caragh-Glancuttaun Glacier. B. Coomloughra Glacier, confluent at its maximum with the Caragh-Glancuttaun Glacier. C. Gaddagh Glacier, formed by the confluence of three corrie glaciers.

Possibility of a Long-period Climatic Oscillation.

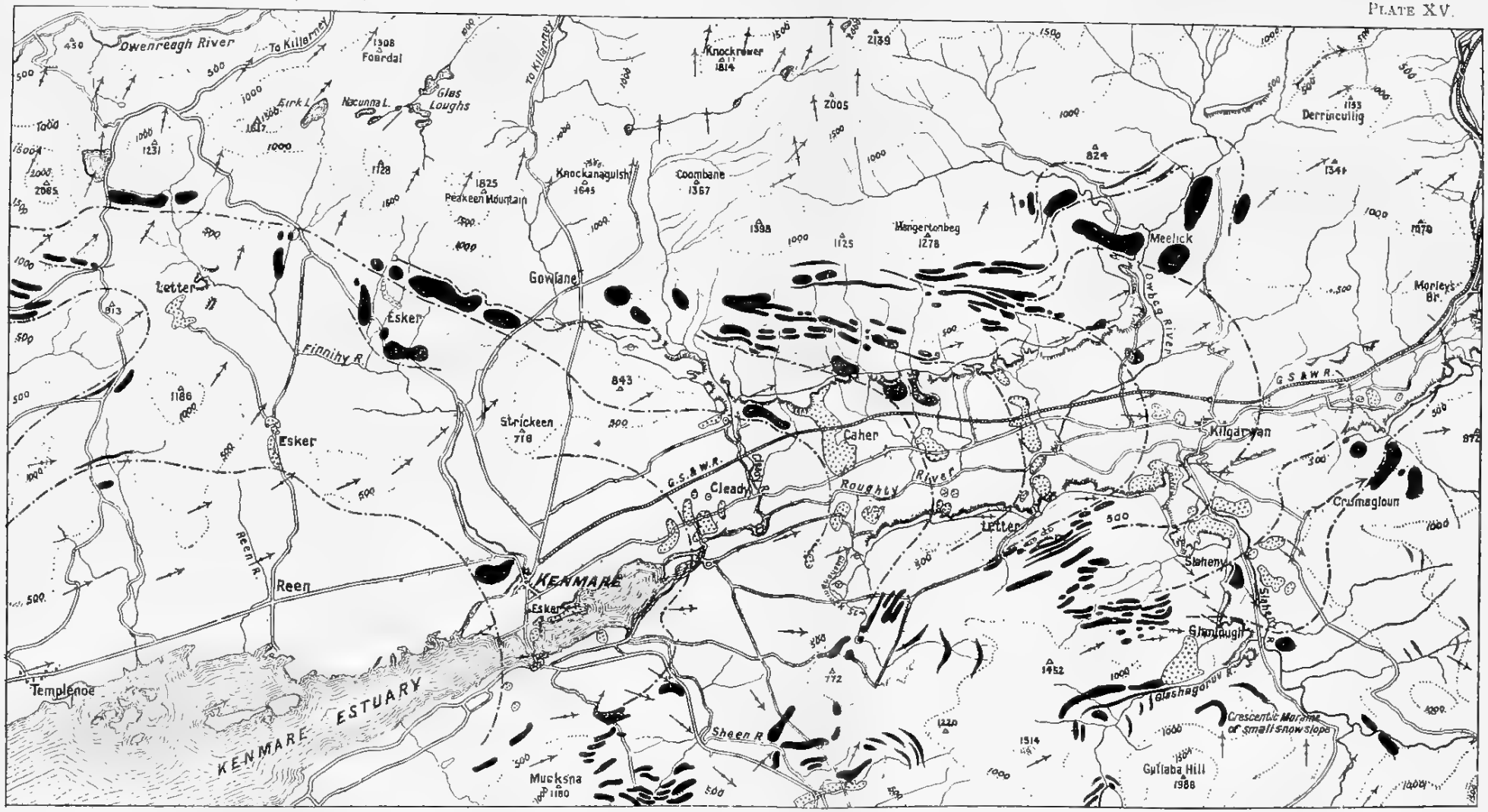
It is a rather remarkable thing that in the history of the retreat of every one of the ice-tongues described above there came a time when no more moraines were deposited even periodically. The area subsequently abandoned is in most cases now occupied by a lake, *e.g.*, Lough Caragh, Lough Leane, and Lough Guitane, or is merely a central basin, as in the case of the Dunloe and Flesk glaciers. In either instances the relatively sudden cessation of moraine formation is very marked, and would seem to indicate some fluctuation in climatic conditions. An argument that at first sight would seem to

support this conclusion is derived from the fact that in the case of different glaciers moraine formation ceased at about the same date. Taking the Dunloe and Killarney glaciers, for instance (see fig. 3), and counting inwards from the point where they last coalesced, we find that in each case there were three stages before the formation of moraines ceased altogether. The outer moraines of the Killarney glacier are too indefinite to enable a similar comparison to be made in the case of the Caragh and Killarney glaciers. The available facts are not inconsistent with the idea that moraine formation ceased at the same date in the case of these two glaciers; but beyond this it is impossible to go. As regards the simultaneous cessation in the case of the Dunloe and Killarney glaciers, an alternative explanation is forthcoming in the fact that these glaciers were fed from the same reservoir in the Black Valley, which in turn was supplied from the Kenmare basin to the south. Once the Kenmare centre of accumulation failed to send ice north, over the high watershed which separates it from the Black Valley, a rapid withering of the Dunloe and Killarney glaciers became inevitable. Judging from the height of the ridges (see fig. 1), the supply from the Kenmare centre into the upper reaches of the Caragh River would be cut off about the same time as that into the Black Valley, or perhaps a little sooner. An appearance of simultaneous rapid withering and consequent cessation of moraine formation would thus be produced.

As regards the ice-tongues of Lough Guitane and the Flesk, which lie further east, the evidence is not very clear, but suggests that they finally withered away while the moraine building of the Killarney glacier was still in full progress. This is consistent with the idea that they must have been cut off from their source of supply in the Kenmare Valley at a relatively early stage of the retreat.

The final retreat down the Kenmare Valley is free from this complication of supply from an outside source which might be cut off suddenly; and it is worthy of note that no moraine barriers occur west of Kenmare (see Plate XV). The retreating ice at this point certainly ceased to form periodic moraines; and it is hard to find a cause for this cessation, unless, perhaps, the dwindling size of the ice-remnant can be regarded as supplying one.

On the whole, however, the very definite termination of the period of intermittent moraine building in the case of the glaciers which form the subject of this paper would seem to be susceptible of explanation from local causes. The question of the beginning of the period of moraine building is even more obscure. The crescentic moraines on the northern plain have certainly a definite outer limit; but this appears to be determined by the coming on of the upland, or in the case of the Caragh glacier by the sea.



Glacial Striæ *Clay Moraines* *Gravel Moraines & Eskers* *Glacial Lake Terraces* *Fluvio-glacial Fans* *Overflow Channels* *Ice Margins*

Map of the Kenmare Valley, showing the terraces of Glacial Lake Kenmare and the periodic nature of the terminal moraines. The ice-margins are rather hypothetical, and are merely inserted as a guide to the interpretation of the moraines. Contours every 500 feet, figures on the upper side. The terrace and outlet of Lake Kenmare lie at an altitude of 320 ft. O.D.

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In the Kenmare Valley there are certainly no moraines in the pass north-east of Morley's Bridge, or on the neighbouring upland; but the conditions are very different from those in the open Kenmare Valley.

In view, however, of the fact that there still remains a possibility that the limits of the periodic moraine building may be due to climatic variation, and that the doubts which obscure the matter might be cleared away by the investigation of adjoining areas, it should be kept in mind that on this assumption an epoch of 250 to 300 years of moraine building punctuated by a thirty-year periodicity appears to have alternated with other epochs in which the retreat was more regular, and perhaps more rapid. The evidence in the Kenmare and Killarney mountains may be regarded as clearly establishing the minor periodicity of about thirty years; but the major periods of 250 to 300 years are only vaguely suggested.

VII.

THE ACARINA OF THE SEASHORE.

By J. N. HALBERT, M.R.I.A.

(Plates XXI–XXIII.)

Read May 10. Published July 28, 1920.

Introduction.

The object of this paper is to record a section of the work recently carried out by Mr. R. Southern, of the Irish Fisheries Branch, and myself on the fauna of the intertidal area. This work was mainly ecological, an attempt being made to study the associations of littoral forms, and for this reason it was necessary to examine a large number of "stations" in the various zones of the shore affected by the tides.

Meanwhile results of systematic importance were obtained in at least one group of animals, namely, the Acarina or mites, which with the insects form an interesting element of the intertidal fauna. It is necessary to describe a number of new forms which have apparently escaped notice up to the present time. For this reason it seems advisable to report on these results, and so make a preliminary use of the large number of field observations which are now available.

The localities selected for examination are the rocky shore at Malahide and the adjoining estuary on the Dublin coast, and Ardfry, at the north-eastern extremity of Galway Bay, on the west coast of Ireland. At the first-mentioned place the work was greatly facilitated by the action of the Royal Irish Academy in lending us the hut bequeathed to the Academy by the late Mr. R. J. Usher, M.R.I.A.

The establishing of this hut on a suitable part of the shore at Malahide enabled us to explore the intertidal area fairly thoroughly during favourable tides, and without this help the work would have been much more difficult. During a short visit in the early part of June 1916, to the Marine Laboratory maintained at Ardfry by the Fisheries Branch of the Department of Agriculture and Technical Instruction, investigations of the littoral fauna were made on lines comparable to those in progress at Malahide.

A short experience of this kind of shore-collecting soon convinced us that some form of sub-division of the intertidal area would be a great help towards

a more exact study of the fauna. It was finally decided to adopt as a preliminary sub-division the zones occupied by certain lichens and seaweeds. Where there is sufficient foothold for the dominant plants these zones are usually present, and succeed each other as well-defined bands on the seashore. Beginning at the top and descending, the zones occur in the following order:

The Orange Lichen zone (species of *Physcia*, *Lecanora*, &c.).
The Pelvetia zone (*Pelvetia canaliculata* dominant).
The Spiralis zone (*Fucus spiralis* dominant).
The Vesiculosus zone (*Fucus vesiculosus* dominant).
The Serratus zone (*Fucus serratus* dominant).

The two uppermost zones were the most thoroughly examined, partly on account of their interest as a meeting-place of many terrestrial and maritime forms, and also their accessibility as less frequently covered by the tides. They represent approximately the part of the shore lying between high neap and high spring tides; and it follows that during the period of neap tides these two zones may be left uncovered for days; for this reason they are frequently almost dry, and the animals occurring therein must be capable of withstanding conditions varying from time to time within a wide range.

The Orange Lichen zone is bounded seawards by the Pelvetia zone. The landward limit is vaguely defined by the extreme range of the maritime species and the occurrence of purely terrestrial forms. In practice, however, there is usually little difficulty in demarcating it. The width of the various zones depends chiefly on the slope of the shore seawards. The more sheltered the coast, the more clearly they are defined.

Apart from descriptions of single species, the Acarina of the seashore have been but little studied, and such papers as have appeared on the subject are of limited scope. Excluding the family Halacaridae or marine mites, the following papers are noteworthy, as they contain references to the great majority of the intertidal Acarina. The numbers refer to the bibliography at end of this paper:—Barrois (**1**), Berlese and Trouessart (**20**), Brady (**21**, **22**), Halbert (**25**), Hull (**26**), King (**27**), Laboulbène (**30**), Lohmann (**32**, **34**), Michael (**36**, **37**), Moniez (**38**), Tietze (**46**), Topsent and Trouessart (**47**), Trägardh (**50**), Trouessart (**53**).

The first paper in which an attempt is made to deal comprehensively with littoral species is that of Moniez (**38**) on the mites and insects observed by him on the seashore at Boulogne; with the exception of a few unnamed varieties the paper refers to previously known species. In 1889 Berlese and Trouessart published a joint paper (**20**) containing the original descriptions of six of our most characteristic shore mites. Ten years later Tietze (**46**) made observations on a few species found on the Venetian coast, and his paper

may be found incorporated in Canestrini's well-known "Prospetto" (23). King has published an account of four species of Acarina found on the coast at Millport, in the Firth of Clyde, with some interesting observations on their life-histories. During the recent Clare Island survey a good deal of attention was given to the littoral Acarina of the Mayo Coast, and some new forms were brought to light (25). Mr. R. Southern has already published a very useful analysis of the large amount of shore-collecting carried out during this survey, more especially from the ecological standpoint (R.I.A. XXXI.). A recent paper by Hull (26) contains a number of intertidal species found in the Tyne Province and elsewhere in the North of England.

The species included in the following list are such as can be reasonably considered as habitual denizens of the intertidal area. I am aware that many other species found in the vicinity of high-water mark might have been included, more especially in the families Oribatidae and Trombidiidae, but for the present it seems best to include only such species as appear to live in places directly affected by the tides. A few of the mites recorded in this paper, such as *Gamasus longicornis* Berl., the two species of Alicus, and some Oribatids, require verification as inhabitants of the intertidal area.

The question then arises—are these intertidal species specially modified to suit their peculiar mode of life? An examination of the genera represented shows that a fair percentage of them are characteristic of the shore, and when this is the case they are represented by but few, sometimes only one species; such are Halolaelaps, Hydrogamasus, Thinozercon, and others. Yet, although these genera and species often possess peculiarities in the structure of their dorsal and ventral plates and in other characters, it cannot be said that they exhibit any striking modifications to suit them for even a semi-aquatic life. For instance, it is in the breathing organs that we should expect to find modification, but as far as one can judge these organs are not exceptional in the intertidal species. On the other hand, the possession of a smooth shining epidermis, or a covering of fine hairs, to protect the creatures from wet surfaces would be of great use, for the reasons given below, and these are characters which the majority of them possess; in common, however, with a great many purely terrestrial species. A modification in the form of the tarsi and ambulacra certainly does occur in a few genera (Hydrolaelaps and others), and we find a similar change in these structures in certain species of the terrestrial acari which frequent very wet places (25) away from the seashore.

It was at first believed that these intertidal mites lived freely on the shore, and on the approach of the tides betook themselves to crannies and

fissures, where there was sufficient air to support them during the time their haunts are covered with water. But a little observation of the creatures soon proves that this is an erroneous idea. It is quite true that the more active mites (Rhyncholophus, Bdella, &c.,) may often be seen moving about freely on the shore at low tides, more especially during bright weather, and they must necessarily seek retreats to protect themselves from the tides. Yet their habitual dwelling-places are in the sheltered spots, such as crevices, rock-fissures, and under embedded stones, as anyone who has collected these animals can easily observe. These habitats are always such as have been for long undisturbed, and where air is imprisoned during high tides, and there the mites and their associates are found even in places that have not been covered by water for several days, as in the Pelvetia and Orange Lichen zones. Indeed, a boulder for long embedded in sandy mud, or a flaking rock, often presents an interesting sight on being disturbed. It will be noticed that, although covered twice a day by the tides, the freshly exposed surfaces are not saturated with water, but are just moist, or in the higher zones fairly dry, and in the favoured places are peopled by a variety of insects, mites, and other animals. There may be found large colonies of the common shore springtail *Anurida maritima*, with myriads of their cast skins in a dry condition, and attendant predaceous mites, beetles (Aepus, Diglotta, Micralymma), and false scorpions (*Obisium maritimum*).

Higher up on the shore in the gravel, sand, and shell association, at about high-water mark, Acarina are often found in places where there are no such retreats, but in this case the mites are only occasionally wet or sprayed, by the spring tides, and are evidently quite at home in their habitat. Comparatively few species have succeeded in establishing themselves here, though they may be numerous enough in individuals.

A glance at the table (p. 111) giving the zonal distribution of the intertidal Acarina makes it clear that the number of species becomes suddenly much less below the Orange Lichen zone, and in order to understand this it must be remembered that this zone is normally not covered by water for a large proportion of the tide-cycles. Apparently a majority of the species have not succeeded in penetrating lower than this zone, and, as might be expected, they are largely such as are not confined to an intertidal habitat; this applies in particular to the family Oribatidae. This is also a less marked falling-off below the Pelvetia zone, and here again there is less flooding than in the case of the lower zones, which are normally covered by the two daily tides. The list contains seventy-seven species, and of these (excluding the Halacaridae) we find that about twelve species range from the Orange Lichen down to the Serratus, and in a few cases even to the Laminaria zones. In the localities

examined three species were found only in the two lowest zones—namely, *Halolaelaps glabriusculus*, *Hydrogamasus littoralis*, and *Eupodes variegatus* var. *halophilus* nov.; the adult of *Cyrthydrolaelaps hirtus* Berlese was found in these zones, though its nymphal form is abundant on the higher part of the shore. No doubt these species, as well as others in the list, will be found to have a wider range when additional localities have been examined.

As already stated, these zonings are the result of observations carried out on the stretch of limestone rocks at Malahide. At Ardfry the shore is not rocky, at least in the localities examined; there the species were found chiefly under embedded stones in places where the botanical zones are present. The unmarked species are such as were found amongst stones and decaying seaweeds, or in estuaries, where the zones are more or less obliterated. Some estuarine species occurring on muddy flats are also found on the Orange Lichen zone of the open seashore.

Less attention was given to the Halacaridae, or marine mites, than to the terrestrial families, only the species noted on the rocky shore at Malahide are mentioned. Of these, *Agaue brevipalpis* Trouess, occurred in a small pool in the Pelvetia zone (July, 1917); it does not seem to have been recorded from British shores, though it is known to occur on the French coast of the English Channel. The single representative of the Hydrachnidae, or fresh-water mites, found during our shore work is a widely spread form, *Eylais hamata* Koenike: a few specimens occurred in fresh and brackish pools in the bed of the Broadmeadow Water in the Malahide Estuary. These two families are included only at the end of the zonal list.

As regards the systematic result of our work, seventy-seven species of intertidal Acarina are recorded in this paper, and they are distributed in the following groups:—Gamasoidea, 28 species; Oribatoidea, 17 species; Sarcoptoidea, 2 species; Trombidoidea, 30 species. It is necessary to describe a new genus (Thinoseius), twelve new species, and three new varieties of known species. In order to make the list as complete as possible, such species as have been found in other localities besides Malahide and Ardfry, recorded or otherwise, are included, notably those found during the recent Clare Island Survey (25). It is anticipated that at some future date an account of the intertidal fauna of the Malahide and Ardfry areas from the purely ecological point of view will be published.

It is with pleasure I acknowledge my indebtedness to our leading European Acarologist, Dr. A. Berlese, of Florence, who has given me most valuable help in the identification of new and little known forms.

A complete set of the new forms described in this paper is deposited in the National Museum, Dublin.

LIST OF SPECIES, AND THE ZONES IN WHICH THEY ARE FOUND.

	Orange Lichen Zone.	Pelvetia Zone.	Spiralis Zone.	Vesiculosus Zone.	Serratus Zone.
GAMASOIDEA.					
Cyrthydrolaelaps hirtus *Berl.*,	—	—	Sp	V	Se
Gamasolaelaps aurantiacus *Berl.*,	O	—	—	—	—
Rhodacarus roseus var. pallidus *Hull*,	O	P	Sp	—	—
Halolaelaps glabriusculus *Berl. et Trouess.*,	—	—	—	V	Se
Halolaelaps celticus *Halbt.*,	—	—	—	—	—
Gamasellus inermis sp. nov.,	O	P	—	—	—
Gamasus Kempersi *Oudms.*,	O	P	—	—	—
Gamasus lunaris *Oudms.*,	O	—	—	—	—
Gamasus coleoptratorum (*L.*),	O	—	—	—	—
Gamasus immanis *Berl.*,	O	—	—	—	—
Gamasus Trouessarti *Berl.*,	O	P	Sp	V	Se
Gamasus crassipes var. longicornis *Berl.*,	O	—	—	—	—
Gamasoides spinipes (*C. L. Koch*),	O	—	—	—	—
Hydrogamasus littoralis (*G. et R. Can.*),	—	—	—	V	Se
Hydrogamasus Giardi (*Berl. et Trouess.*),	—	P	Sp	V	Se
Pachylaelaps littoralis *Halbt.*,	—	P	Sp	V	—
Macrocheles marginatus var. littoralis (*Halbt.*),	O	—	—	—	—
Laelaps dentatus sp. nov.,	O	P	Sp	V	—
Episeius grandis (*Berl.*),	—	—	—	—	—
Lasioseius salinus sp. nov.,	—	—	—	—	—
Lasioseius fucicola sp. nov.,	O	—	—	—	—
Thinoseius Berlesii gen. et sp. nov.,	O	—	—	—	—
Thinozercon Michaeli *Halbt.*,	O	P	—	—	—
Phaulocylliba littoralis (*Trouess.*),	—	P	Sp	V	—
Phaulodinychus repletus *Berl.*,	O	—	—	—	—
Phaulodinychus orchestiidarum (*Barrois*),	—	P	Sp	V	Se
Trachyuropoda minor (*Halbt.*),	O	P	—	—	—
Dinychus sp.,	O	—	—	—	—
ORIBATOIDEA.					
Oribata setosa *C. L. Koch*,	O	—	—	—	—
Oribata quadricornuta *Michael*,	O	—	—	—	—

LIST OF SPECIES, AND THE ZONES IN WHICH THEY ARE FOUND—*continued.*

	Orange Lichen Zone.	Pelvetia Zone.	Spiralis Zone.	Vesiculosus Zone.	Serratus Zone.
ORIBATOIDEA—*continued.*					
Oribata quadrivertex sp. nov.,	O	—	—	—	—
Oribata avenifera *Michael*,	O	P	—	—	—
Oribata Lucasii *Nicolet*,	—	—	—	—	—
Oribata parmeliae *Michael*,	O			—	—
Oribatula similis *Michael*,	O			—	—
Oribatula venusta *Berl.*,	O		—	—	—
Oribatula saxicola sp. nov.,	O	—	—	—	—
Scutovertex bilineatus *Michael*,	O	P	—	—	—
Scutovertex Spoofi *Oudms.*,	O	P	Sp	—	—
Scutovertex corrugatus *Michael*,		—	—	—	—
Scutovertex maculatus *Michael*,	O		—	—	—
Scutovertex perforatus *Berl*,		—	—	—	—
Hermannia scabra *L. Koch*,	O	P	—	—	—
Hermannia reticulata *Thor.*,	O	—	—	—	—
Nothrus invenustus *Michael*,	O	—	—	—	—
SARCOPTOIDEA					
Tyroglyphus littoralis sp. nov.,	—	—	—	—	—
Hyadesia fusca *Lohm*,	O	P	Sp	—	—
TROMBIDOIDEA					
Lasiotydaeus brevistylus sp. nov.,	O	P	—	—	—
Rhagidia halophila *Lab.*,	O	P	Sp	V	Sc
Eupodes variegatus var. halophilus nov.,		—	—	V	Sc
Chromotydaeus ovatus (*C. L. Koch*),	O	P	Sp	V	—
Halotydaeus hydrodromus *Berl. et Trouess.*,		P	Sp	V	Sc
Alicus oblongus sp. nov.,	O		—	—	—
Alicus latus sp. nov.,	O			—	—
Nanorchestes amphibius *Tops. et Trouess.*,	O	P	Sp	—	—
Bdella littoralis (*L.*),	O	P	Sp	V	
Bdella decipiens *Thor*,	O	P	Sp	V	—
Cyta latirostris *Herm.* (*C. L. Koch*),	O	P			—
Rhaphignathus scutatus sp. nov.,	O	P	—	—	—

LIST OF SPECIES, AND THE ZONES IN WHICH THEY ARE FOUND—*continued.*

	Orange Lichen Zone.	Pelvetia Zone.	Spiralis Zone.	Vesiculosus Zone.	Serratus Zone.
TROMBIDOIDEA—*continued.*					
Stigmaeus rhodomelas var. fissuricola nov.,	O	P	—	—	—
Rhyncholophus araneoides (*Berl.*),	O	—	—	—	—
Rhyncholophus Passerinii (*Berl.*),	O	P	—	—	—
Rhyncholophus rubripes *Berl. et Trouess.*,	O	P	—	—	—
Rhyncholophus tardus *Halbt.*,	—	—	—	—	—
Microtrombidium pusillum var. major nov.,	O	—	—	—	—
[1] Eylais hamata *Koenike*,	—	—	—	—	—
Rhombognathus setosus (*Lohm.*),	—	—	—	—	—
Rhombognathus notops (*Gosse*),	—	—	—	—	—
Rhombognathus pascens (*Lohm.*),	—	—	—	—	—
Rhombognathus seahami (*Hodge*),	—	—	—	—	—
Agaue brevipalpis *Trouess.*,	—	—	—	—	—
Halacarus actenus *Trouess.*,	—	—	—	—	—
Halacarus Basteri (*Johnst.*),	—	—	—	—	—
Halacarus oculatus *Hodge*,	—	—	—	—	—
Halacarus rhodostigma *Gosse*,	—	—	—	—	—
Halacarus tabellio *Trouess.*,	—	—	—	—	—
Halacarus Fabricii *Lohm.*,	—	—	—	—	—

Localities.—Malahide, Howth, Baldoyle, and Dollymount, on the coast of Co. Dublin. Ardfry, on the Galway coast. Westport and Mulranny, on the Mayo coast. Lough Hyne, Co. Cork.

Order ACARINA.

Sub-Order GAMASOIDEA.

Family **GAMASIDAE.**

Cyrthydrolaelaps hirtus Berl.

1899 *Gamasus sp.* Tietze **23**, p. 948; **46**. 1904 Berlese **8**, p. 19. 1915 Halbert **25**, p. 60. 1918 Hull **26**, p. 77.

A characteristic shore species occurring from the Pelvetia down to the Serratus zone. At Malahide it lives between limestone flakes, usually where

[1] The families Hydrachnidae and Halacaridae are included here merely for convenience of reference. The latter occur chiefly in rock pools.

there is a layer of damp sandy mud; occasionally seen running on the rocks at low tides. I have found adult and late nymphal forms well below tide marks in the Vesiculosus and Serratus zones; on the other hand, the early nymphal form (protonymph) occurs commonly on the upper parts of the intertidal area, usually in the Pelvetia zone. At Ardfry it occurred under stones resting on mud, June.

First described by Tietze (**23**) as an unnamed species of *Gamasus*, his figures leave no doubt that the species dealt with is the present one; subsequently described by Berlese from specimens collected by Trouessart on the coast at Finisterre. Both sexes, the protonymph and the *nympha coleoptrata*, are described in **25**.

Gamasolaelaps excisus (L. Koch).

1879 *Scius excisus* L. Koch **22**, p. 122. 1903 *Cyrtolaelaps* (?) *aurantiacus* Berlese **7a**, p. 241. 1906 *Gamasolaelaps aurantiacus* Berlese **11**, p. 101. 1915 Halbert **25**, p. 58. 1918 Hull **26**, p. 77.

The *nympha coleoptrata* form of this species occurred on the Mayo Coast at Westport and Mulranny in July and September. The adult female was found under stones in a brackish place, a little above high-water mark, at Howth in September (**25**). The species has not been found since in Ireland, but I believe the localities are such as would correspond to the Orange Lichen zone.

There can scarcely be any doubt that this is the mite described and figured by L. Koch as *Scius excisus* (**29**); therefore the species is recorded as above.

Rhodacarus Oudms.

In his "New List of Dutch Acari" (**43**, p. 48) Oudemans described a very interesting acarid—Rhodacarus—and established a new sub-family for its reception. His chief reasons for doing so are that the genital aperture of the male is situated *in* the sternal shield instead of *on* its front margin, and the chelicerae are without appendages in both sexes. He also comments on the position and structure of the female genital foramen, and the division of the body into two distinct regions, "a true thorax and a true abdomen."

The occurrence of *Rhodacarus roscus* in Ireland has already been recorded (**25**, p. 81), and I have recently found a varietal form of it living in rock-fissures on the seashore at Malahide. Dr. Oudemans found the type in Holland amongst decaying leaves, and the Irish specimens occurred in a similar habitat in marshy places at Glendalough and in the Tolka valley, near Dublin.

In the male the genital foramen (Pl. XXI, fig. 1b) would at first sight appear placed at some distance from the front margin of the sternum, but a

closer examination makes it clear that the part of the sternum in front of the genital foramen is weakly chitinized, and is formed by a uniting and enlargement of the jugular plates. The genital foramen lies in the thickly chitinized margin of the true sternal shield, where it is fused with the jugular area, so that the position of the foramen is quite normal. With regard to the armature of the male chelicerae, it seems to me that the chitinous swelling at the outer side of each free chela represents the modified male appendages; it is absent from the female. The position of the female foramen is rather further back than is usual in the Gamasidae, but its position is really much as in certain other genera, such as in Gamasellus. A more important point, which is not referred to in the original description of Rhodacarus, is the presence of a small conical plate between the genital and sternal shields. It is placed immediately in front of the genital shield, as it possibly represents the fused paragynial plates.

Rhodacarus roseus, Oudms.

A few specimens found between damp flakes at the top of the Orange Lichen zone at Malahide are apparently identical with the typical form. Lower down, in the intertidal area, it is replaced by a variety which is, I believe, the same as the form recently described as a new species by Hull (**26**).

Var. **pallidus** Hull. (Pl. XXI, fig. 1 a, b.)

The original description is as follows:—"Translucent white, with the appendages tinted with brown. Considerably larger than *roseus*. Epistome with a simple acute tapering process without terminal plume or basal teeth; otherwise resembling *roseus*. West Allendale, under deeply embedded stones with *Pergamasus hamatus*. I have seen two males only" (**26**, p. 57). The length of the male is given as 440μ.

In the Irish specimens the measurements are: in the female (fig. 1 a), length about 550μ, breadth, 220μ; in the male, 518μ and 230μ, so that, as well as being considerably larger, it is also relatively narrower than the type form for which Oudemans gives the following measurements: length of female, 490μ; of male, 385μ. The colour is white tinged with pink, lyrate organs brown, and the mouth parts of a deeper brown. The legs are decidedly longer; those of the female are about 550μ, 330μ, 300μ, and 450μ respectively. The long median spine of the epistome is minutely spiculate at its apex, and there are one or two pairs of small finely pointed teeth close to the base; possibly the presence of these characters was overlooked in the original specimens. The armature of the tarsi appear to differ in the sexes; in

the male and female of the typical form the ambulacra and claws are missing from the first pair of legs, while in the variety fairly well-developed claws are present in the female, though they are absent or rudimentary in the male.

HABITAT. The variety *pectinifer* Hull occurs at Malahide in the Orange Lichen, Pelvetia and Spiralis zones, usually between limestone flakes where there is some sandy mud, in from almost dry to moist situations. The dates of capture range from March to October.

Halolaelaps glabriusculus Berlese et Trouessart.

1875 ? *Gamasus marinus* Brady **21**, p. 307. 1889 Berlese et Trouessart **20**, p. 2. 1890 *Zercon marinus* Moniez **38**, p. 13. 1902 *Parasitus marinus* Oudemans **41**, p. 281. 1906 Berlese **11**, p. 109. 1914 King **27**, p. 135. 1915 Halbert **25**, p. 56. 1918 Hull **26**, p. 77.

A characteristic species in the lower zones of the intertidal area, I have usually found it in crevices and between limestone flakes in the Vesiculosus and Serratus zones at Malahide. It may also be found under stones on estuarine and non-rocky shores, as at Ardfry and Westport, in the West of Ireland.

Halolaelaps celticus Halbt.

1915 Halbert **25**, p. 57. 1918 Hull **26**, p. 77.

Found under stones just below high-water mark on the seashore at Westport, July, 1911. It is very abundant at Howth in a similar habitat amongst decaying seaweeds, September, 1913. I did not succeed in finding it on the rocky shore at Malahide. Hull has recorded it from the Tyne province (**26**).

Gamasellus Berlese.

The genus Gamasellus was first established as a sub-genus of Cyrtolaelaps by Berlese in the supplement (**3**, p. 61) to his Monograph on Italian mites (**2**). No type species was specially indicated, though four species are referred to the new sub-genus; of these it is necessary to select *Gamasellus falciger* (G. et R. Can.) as the type of Gamasellus. The reason for this selection is that all of the four species are not congeneric, and Berlese makes it quite clear in a later reference (**9**) that Gamasellus is intended to include those species in which the sternal and ventro-anal plates are united in the male; such is the case in *Gamasellus falciger*, a good figure of which will be found in (**2**, Fasc. LXIII, n. 4).

The four species originally referred to Gamasellus are *G. falciger* (G. et R. Can.), *G. spericornis* (G. et R. Can.), *G. captator* Berlese, and *G. cornutus*

Kramer. The two first-mentioned species are congeneric, but the others are evidently to be referred to Dendrolaelaps Halbt., described in 1915 (**25**, p. 68), with *D. Oudemansi* as the type-species. In the male of this genus the sternum is separated from the ventro-anal shield, and the latter is fused with the second dorsal plate. The chelicerae carry long processes, and the second legs are very stout, the tarsi being armed with a spur. Dr. Berlese has since raised Gamasellus to generic rank, and has established a new sub-genus as follows :—Digamasellus, "Characteres generis Gamasellus, sed scuto maris sternale ab anale distincto. Species typica. *G. perpusillus*" (**9**, p. 234). It would seem that a new species of Gamasellus found on the rocky shore at Malahide is to be referred to the sub-genus Digamasellus. At first I had some doubt on this point, but Dr. Berlese has seen specimens of both sexes, and refers them to this sub-genus, notwithstanding the fact that the second legs are unarmed on the male, while in the type species (*D. perpusillus*) they are armed; therefore the present species is exceptional in this respect.

Gamasellus inermis sp. nov. (Pl. XXI, fig. 2 a, d.)

An active orange-coloured species, which lives in fissures and between flakes on the seashore. *Female* (fig. 2 a): length, 470μ; breadth, 264μ; colour a shining orange; immature specimen yellowish. Body of the usual gamasoid shape, with three double rows of short hairs. Dorsal plates of almost equal breadth; the truncated posterior margin of the second plate reaches end of abdomen, and carries a pair of large pores (fig. 2 b). Sternum long, with bow-shaped front, and truncate end margins, sides deeply incised. Jugular plates absent, at least as separate plates; metasternal plates rudimentary, position indicated by paired hairs. Genital plate laelaptoid, longer than broad; a pair of hairs on the side margins. Ventro-anal shield large, flattened on its front margin, and it reaches the end of the body in some specimens. Inguinal shields are present, and there are also three or four pairs of very minute plates. Endopodial plates rod-like. Peritreme strongly sinuate, poststigmatic end partly encircling last pair of legs.

Capitulum quadrate, epistome with three short spines, maxillary lobes acute, and placed well in advance of the palp articulations. Free chela armed with two strong teeth, fixed chela with two teeth, and a smaller one placed near extremity. Palps (length 125μ) of normal structure, the second and third segments armed on their inner sides with a strong spine. Legs rather long and stout, with sparse hairs; the approximate lengths are 340μ, 286μ, 242μ, 298μ.

Male: Considerably smaller than the female, with which it agrees in the structure of the dorsal plate, peritreme, pedal plate, and other characters.

Length, 374μ; breadth, 130μ. Anterior part of the sternum (fig. 2 c) like that of female, but the plate is much longer, widening into a wedge-shape at the end margin of the fourth acetabula. Genital foramen large, with a thick chitinous border; sternal hairs, five. Ventro-anal plate very large, its flattened front margin lying close to the sternum, and the posterior margin reaching end of body.

Chelicerae (fig. 2 d) minute and curved; fixed chela with one strong tooth and a sinuate chitinous process rising from its base; length about twice that of the chela. In its natural position, as seen from below, the process points inwards and downwards, apex hooked. Free chela with one strong central tooth and two small teeth close to the apex of the segment. Legs as in the female; second pair a little stouter than the others; unarmed.

Habitat.—An undoubtedly intertidal species occurring in the Orange Lichen and Pelvetia zones at Malahide. It lives in fissures and between flakes in from dry to moist places where there is little silt, occasionally in spots that have not been covered by the tides for several days. The sexes appear to occur in about equal numbers, and females with eggs were collected in February and September, the earliest and latest months in which the species was noticed.

Gamasus Kempersi Oudms.

1902 Oudemans **43**, p. 36. 1906 Berlese **11**, p. 143. 1915 Halbert **25**, p. 49. 1918 Hull **26**, p. 83.

A species characteristic of the high-water mark level. It is often abundant there under stones and seaweed and amongst moist, shelly sand and gravel, in places where there are usually few other species of mites. On the rocky Malahide shore I did not find it below the Pelvetia zone, though it probably does occur in the lower zones. Also found in the Westport district, and very generally on the Dublin coast. The dates of capture range from February to November.

Gamasus lunaris Oudms.

1882 *Gamasus rubescens* G. et R. Can. "Gamasi Ital.," p. 42. 1892 *G. rubescens* Berlese **2**, Fasc. LXIX, n. 9. 1903 *G. rubescens* Oudemans **41**, p. 78. 1906 *G. lunaris* Berlese **11**, p. 147. 1915 Halbert **25**, p. 50. 1918 Hull **26**, p. 83.

Found under decaying seaweeds washed by the tides into the Orange Lichen zone at Malahide, August, 1915. It was found under similar conditions on the seashore at Westport. Possibly not a regular denizen of the intertidal area.

Gamasus coleoptratorum L.

The female of this common European species occurred under stones resting on sand, gravel, and shells in the Orange Lichen zone at Malahide, June, 1916. The nymph was also found, commonly under decaying refuse lying on the rocks in the same zone, May, 1918, and on Westport shore in September.

Gamasus immanis Berl.

1903 Berlese **7b**, p. 262. 1906 Berlese **11**, p. 179. 1915 Halbert **25**, p. 50. 1918 Hull **26**, p. 85. 1914 King **27**, p. 129.

This fine acarid, the largest of our native Gamasidae, was first recorded as a British species by King, who has published some interesting observations on its life-history (**27**). Subsequently I met with it on the coasts of Dublin, Mayo, and Cork (**25**) under stones, amongst shingle, and in decaying seaweeds at high-water mark. It has also been found at Ardfry under limestone boulders resting on damp sandy mud in the Orange Lichen zone, June, 1916.

Gamasus Trouessarti Berl.

1889 *Gamasus thalassinus* Berl. et Trouess. **20**. 1889 *G. fucorum* var. *β* **38**, p. 156. 1892 *G. Trouessarti* Berlese **3**, p. 67. 1915 Halbert **25**, p. 51. 1918 Hull **26**, p. 85.

An abundant and characteristic shore species, occurring in a variety of habitats, from the Orange Lichen down to the Serratus zone, as at Malahide and Ardfry. On the lower part of the shore it occurs chiefly in crevices and rock fissures, and under stones embedded in mud. It is often abundant under decaying seaweed at high-water mark, and I have found the adults and nymphs in the sand, gravel, and shell association, and in estuaries on the Dublin coast.

Gamasus crassipes L. var. **longicornis** Berl.

Under stones and decaying seaweeds at Ardfry, June. A common and widely distributed form, possibly not a regular inhabitant of the intertidal shore.

Gamasoides spinipes (C. L. Koch).

1844 *Gamasus spinipes* C. L. Koch **28**, Fasc. 39, fig. 18. 1885 *G. brachiosus* G. Can. **23**, p. 79. 1890 *Poecilochirus spinipes* Oudemans **44**, p. 134. 1892 *P. spinipes* Berlese **2**, Fasc. LXIX, n. 4. 1906 *Gamasoides spinipes* Berlese **11**, p. 288.

These are some of the more important references to this peculiar form, which is known only in the *nympha coleoptrata* stage, and it may yet prove

referable to some known species. Shore of oyster pond at Ardfry, in the Orange Lichen and Pelvetia zones, under stones on muddy soil in a spot flooded at high tides, June, 1916. At Mulranny it was found under stones on the shore and also in old nests of Puffins and Black-backed Gulls on The Bill Rocks, off the coast of Mayo, June.

Hydrogamasus littoralis (G. et R. Can.). (Pl. XXI, fig. 3.)

1851? *Gamasus salinus* Laboulbène **30**, p. 297. 1851? *Gamasus maritimus* Laboulbène **30**, p. 298. 1885 *Gamasus littoralis* G. et R. Can. **23** p. 72. 1889 *Gamasus littoralis* Monicez **38** p. 186. 1892 *Hydrogamasus littoralis* Berlese **2**, Fasc. LXVIII, n. 6. 1902 *Hydrogamasus salinus* Oudemans **41**, p. 286.

In the above-quoted references it will be seen that Oudemans has revived "*salinus*" as the correct specific name for the present species, arguing that the mite figured by Laboulbène as "*Gamasus salinus*" is the nymphal stage of *H. littoralis* (G. et R. Can.), and he also refers to the similarity between the original figure of "*Gamasus salinus*" and Berlese's figure (**2**) of the nymph of the present species. Doubtless Laboulbène was dealing with a nymphal form of Hydrogamasus, but there are at least three littoral species in this genus, and there is some uncertainty concerning the exact species dealt with by the various authors. In a case of this kind it seems best to adhere to the first satisfactory description of the species, which is that of the Italian authors, G. and R. Canestrini.

During our work at Malahide I was fortunate in finding what are apparently the protonymphal and deutonymphal forms of *H. littoralis*: they occurred on three occasions in the Vesiculosus and Serratus zones in company with the adult mites. In the protonymph (fig. 3) the primitive arrangement of the dorsal plates is well shown. It will be remembered that the adult Hydrogamasus has the entire dorsum protected by a strongly chitinized shield. In the protonymph there are two large dorsal shields and between these there are no less than four pairs of very small plates: there are also three pairs of small plates on each side of the first shield. The second dorsal shield is placed at the extremity of the body, and it is continuous with the small dorsal plates in the ventral surface. The sternum is of the usual V-shape. The length is 640μ, breadth 370μ.

The deutonymph (length 705μ, breadth 400μ) occurred with the adults in October. In this form there are the usual two dorsal shields; the first of these is larger than in the protonymph, except that the sides, from the humeral to the posterior corners, are parallel; the former are well

marked, and carry a long bristle. Second shield nearly as broad as the first, strongly narrowed to the end margin, which is straight, with a pair of long bristles, and on the inner side of these a pair of very short hairs. The hair armature of the dorsal surface is much as in the protonymph. Anal plate small, placed at end of body, and carrying two pairs of long hairs, and a terminal spine. This is the *nympha coleoptrata* form.

HABITAT.—A species of the lower intertidal area, occurring between limestone flakes and in crevices in the Vesiculosus and Serratus zones at Malahide. At Ardfry it was also found in these zones under boulders partly embedded in sandy mud and in moist places. Adults and nymphal forms were observed both in the summer and autumn months.

Hydrogamasus Giardi (Berl. et Trouess.). (Pl. XXI, fig. 4.)

1889 *Seius Giardi* Berlese et Trouessart **20**. 1889 *Gamasus Giardi* Moniez **38**, p. 193. 1892 *Hydrogamasus Giardi* Berlese **3**, p. 72. 1915 Halbert **25**, p. 65.

This species is found on a wider range of the shore than the preceding, occurring freely from the Pelvetia down to the Serratus zones on the rocky shore at Malahide, usually in crevices and between flakes in from moist to wet places. At Ardfry it occurred in the corresponding zones under boulders resting on sandy mud. The sexes are almost equally abundant, and the dates of capture range from April to October.

Frequently found in company with *H. littoralis* on the lower part of the shore. The two species are structurally very much alike, but they may be separated by the following characters :—

Hydrogamasus littoralis, larger ; length of female, about 940μ ; breadth, 560μ ; length of male, 922μ ; colour paler ; form more oval ; hairs of dorsum relatively longer. Fissure separating dorsum from anal shield reaching the end margin of body.

Hydrogamasus Giardi, smaller ; length of female, 640μ ; breadth, 312μ ; length of male, 563μ ; colour much darker ; body hairs shorter. Fissure not reaching end margin of body.

The supposed difference in the fusion or otherwise of the anal and dorsal plates in these two species does not occur (**3**). As a matter of fact, these plates are fused at their end margins in both species. A figure of the male chelicerae of *H. Giardi* is given (Pl. I, fig. 4) ; those of *H. littoralis* are very similar.

Two other species of Hydrogamasus have been described, i.e., *H. Silvestrii* Berlese (**6**), from the Italian coast (Portici), and *H. antarcticus* Träg., from Paulet Island.

Pachylaelaps littoralis Halbt. (Pl. XXI, fig. 5 a, d.)

1915 Halbert **25**, p. 64.

This species was described from the male found under embedded stones well below high-water mark in Bellacragher Bay, on the Mayo Coast, in September, 1913. As only a single specimen occurred, there was doubt as to whether the species is a true denizen of the intertidal zone. While at Ardfry in June, 1916, females of a Pachylaelaps, which are evidently to be referred to the present species, were met with in the Pelvetia and Spiralis zones.

Female (fig. 5 a): Length, 844μ; breadth, 460μ. Shape and hair armature as in the male (fig. 5 c), which it also resembles in the structure of the palps, legs, peritreme, and other organs. Colour, pale yellow. Sternum of the usual shape, end corners reaching to the fourth acetabula; hinder margin concave; the space between this and the genital plate is weakly chitinized. The genital plate is large, pointed in front, and evenly rounded behind, though occasionally somewhat truncate. Anal plate broader than long (breadth, 140μ; length, 120μ); extremity strigose. Peritreme enclosed in a plate forming a narrow margin on its outer side; end of plate acuminate, reaching well beyond the middle of ventral plate. All these plates are reticulate and punctured.

Maxillary plate narrow, with two pairs of long hairs on front margin and two shorter proximal pairs; maxillary lobes straight and very long, reaching end of hypostome. Epistome with about eight spines, some branched. Each chela armed with one strong tooth. Legs, second pair stout (length about 410μ), segment two, with a small conical tooth. The armature of the tarsus is figured (fig. 5 b).

The *male* of this species has a broad dagger-like process on the free chelicerae, and the femur of the second legs carries a stout conical spur (fig. 5 d).

Habitat.—Found on the shore of Mweeloon Bay, Ardfry, under stones on gravel and sandy mud in the Pelvetia and Vesiculosus zones, June, 1916.

Tietze records the occurrence of a single specimen of *Pachylaelaps pectinifer*, which he found under stones on the seashore at Venice (**46**).

Macrocheles marginatus, var. **littoralis** (Halbt.).

1915 *Holostaspis marginatus*, var. *littoralis*, Halbert **25**, p. 67.

The variety was described from females and an immature male found on the seashore at Westport. It has also occurred at Malahide under stones and refuse in the Orange Lichen zone, and at Ardfry under stones resting on mud in the same zone. It seems a rather common form at the high-water level.

Family **LAELAPTIDAE**.

Laelaps dentatus sp. nov. (Pl. XXI, fig. 6 a, e.)

A species remarkable for its very elongate shape, the dentate anterior corners of the sternum, and the armature of the last pair of legs in the male. The female resembles that of *L. oblongus* Halbt. (**25**), but is narrower and more elongate, and the peritreme is not joined with the pedal plates. The ventral plates also are differently formed. *Female* (fig. 6 a): Size rather variable, averaging about 660μ in length, and 360μ in breadth. Shape, elongate oval, with slightly marked shoulders, and the colour is yellowish, with darker lyrate organs. Dorsal shield large, very minutely punctured, and with indistinct scale-like markings; side margin even. There are four double rows of hairs; frontal bristles small. Sternum large, its rounded end margin reaching the third acetabula; front margin sinuate towards the corners. Jugular plates well developed, placed on a thinner and larger chitinous base. Tritosternum small and narrow, springing from a slightly crescentic basal piece, at each side of which is a chitinous piece. Genito-ventral shield very long and broad, gradually widening to beyond middle, and then narrowing to end margin, which is straight; four pairs of hairs. Metasternal plates very minute. Anal plate triangular, broader than long, front margin as broad as and lying close to margin of preceding shield. The metapodial plate encloses last pair of acetabula, beyond which it projects on a pointed lobe. Inguinal plates linear. Peritreme curved inwards towards the extremity, and it lies free of the metapodial shield.

Maxillary plate quadrate, four pairs of hairs; lobes straight. Epistome convex, armed with small sharp teeth. Fixed chela with four teeth, two of which are terminal. Legs long and robust; the lengths are about 616μ, 418μ, 384μ, and 550μ.

Male (fig. 6 b) considerably smaller than female, varying from 480μ to 550μ in length, and in breadth from 240μ to 280μ. Ventral shield of usual shape, almost reaching end of body, reticulate, with a double row of nine median hairs. The anterior side margins of the sternal part are distinctly dentate (fig. 6c). Each chela is armed with a strong triangular tooth; the fixed one is strongly arched. The male appendage (fig. 6 d) projects by about half its length beyond the apex of the segment, slightly sinuate, and bent upwards at the extremity. Palps of usual type. Legs, lengths about 528μ, 440μ, 330μ, and 528μ; second pair a little stouter than the others, outer margin of third segment (fig. 6 e) with a rounded prominence at base, ventral side with four hairs. Third segment (femur) of last pair of legs armed with

a large chitinous tooth placed near middle of ventral surface. In one abnormal specimen there are two such teeth on the left femur.

HABITAT.—An abundant and characteristic intertidal species, usually occurring in crevices and between flakes where the coast is rocky, and also under stones on estuarine shores. At Malahide it is found in from almost dry to moist crevices in the Orange Lichen, Pelvetia, and Spiralis zones. Has also been found at Ardfry, where it extends down to the Vesiculosus zone at least. The males are less common than the females. The dates of capture range from February to October, and it probably occurs in all months of the year.

Lasioseius Berlese.

In my report on the Acarina of the Clare Island Survey (**25**) it was pointed out that the Seius group of the family Laelaptidae was badly in need of revision. The species there recorded were referred to the genera Seiulus (Berlese and Paraseius (Tragardh). Dr. Berlese has since published a useful paper (**16** in which new genera and sub-genera are established, either with brief diagnoses or by the naming of types.

Berlese indicates *Seius muricatus* (C. L. Koch) as the type of the genus Lasioseius, so it is necessarily also the type of the sub-genus Lasioseius (s. str.). In this species the tarsi and ambulacra are of the form usual in the Seius group of genera. It seems unsatisfactory, however, to include in the same genus such species as *L. italicus, L. serratus,* and *L. grandis,* in which the tarsi are much attenuated, and the ambulacra are modified into a bristle-like form. Such species should, in my opinion, be included in a separate genus, and as the name Episeius has been suggested for this purpose by Hull (**26**), with *E. serratus* (Halbert) as the type, this name must be used. In a previous paper I endeavoured to establish Paraseius Träg. for the species with modified ambulacra, but unfortunately Tragardh indicated *Gamasus mollis* Kramer (**49** as the type of his genus. Dr. Berlese is now convinced that Paraseius is the same as Epicrius Can. et Fanzago, for the reason that Kramer's species is nothing more than a nymphal form of *Epicrius geometricus*, Berl. (**17**).

Episeius grandis (Berlese).

1916 *Lasioseius grandis* Berlese **16**, p. 34.

HABITAT.—Salt marsh on Malahide Island, a few specimens found under shells and stones, May. The females are abundant in Malahide estuary, under stones in a partly dry channel of the Broadmeadow Water. It

also occurs on the open seashore at Malahide amongst wet moss growing on calcareous tuffa where a streamlet flows on to the shore, June.

Described by Berlese from Italian specimens found in moss and amongst dead leaves (**16**). It is rather a large species (about 670μ × 450μ), belonging to the group with modified tarsi and ambulacra. The dorsal shield has strongly squamose markings, especially towards the sides, and the hair armature is strong. The plates of the ventral surface greatly resemble those of *E. italicus* Berlese (figured in **25**), except that the ventro-anal plate is much smaller, and is of a roughly cordate shape length, 220μ; breadth, 176μ). Not previously recorded from the Britannic area.

Lasioseius salinus sp. nov. (Pl. XXI, fig. 7 a, b)

A small species belonging to Leioseius, a sub-genus, briefly diagnosed by Berlese as follows:—"Ex genus *Lasioseius*. Pedes breves et robusti. Truncus elongatus, lateralibus subparallelis. Typus: *L. L. minusculus*, Berl." (**16**, p. 45).

Female (fig. 7 a): Length about 440μ; breadth, 260μ. Colour pale brown. Shape as is usual in Lasioseius. Dorsal plate sub-parallel, reaching end margin of body; sides weakly serrate; surface finely punctured and reticulate. Hairs weak; two pairs on the end margin stronger than the others. Sternum rather short; genital plate long and narrow, much as in *E. serratus*, Halbt. Ventro-anal plate large, broader than long, flattened on the front margin, rounded posteriorly, minutely punctured, and there are about six pairs of small hairs. Peritreme close to the legs, it is joined with the inner margin of a well-developed plate, post-stigmatic extremity curved inwards and partly enclosing the last pair of legs. Maxillary plate quadrate, hair armature normal. Chelicerae: the free chela is armed with two strong teeth; fixed chela with about four very weakly developed teeth. Legs short and stout, tarsus of last pair figured (fig. 7 b).

This species appears to differ from the two described European species, *L. minusculus* and *L. venustulus*, in the less elongate shape, the shorter sternal plate, the broader ventro-anal shield, and also in the relatively shorter first pair of legs.

HABITAT.—Found under dead shells in a salt marsh on Malahide Island, May, 1915.

Lasioseius fucicola sp. nov. (Pl. XXI, fig. 8 a, d.)

A very distinct species, which is chiefly remarkable for the long penicillate hairs on the margin of the body. The following is Dr. Berlese's diagnosis of the sub-genus Zercoseius, to which it belongs: "*Zercoseius* n. sub-genus.

Ex genus *Lasioseius*. Pili trunci plus minusve penicillate, vel dilatati. Typus *L. Z. spathuliger* Leon" (**16**, p. 43).

Male (fig. 8a): Length, of a Swanage specimen, about 768μ, breadth 537μ; of a Malahide specimen 614μ, breadth 476μ; the latter is probably not mature. Colour pale brown. Shape ovate, slightly flattened on end margin; sides indistinctly serrated. Dorsal surface minutely punctured, and with reticulate markings, becoming scale-like towards the end of the body. On each side of the dorsum there is a row of seven strong marginal spines; these (fig. 8b) are straight and smooth, except at the extremities, which are somewhat flattened and penicillate. There are two pairs of stout frontal spines; two rows of minute hairs in the middle line of the body, and a few on the side margins. The ventral shield (fig. 8c) is V-shaped, with strongly pointed side processes and bow-shaped front margin, and there are four pairs of minute hairs. Peritreme long and sinuate; apex reaching fourth coxa; no shield. Anal plate small, semicircular in front, and suddenly narrowed to an acutely pointed extremity, where there is a strong terminal spine.

Epistome armed with comparatively long spines, branched at the extremities; maxillary plate large and transverse; lobes small; there are three pairs of rather long hairs on the front margin (fig. 8d). Palps of moderate size, with two strong conical teeth on underside of first segment; second segment with five short spines, three of which are on the dorsal surface.

Legs, with the exception of the first pair, long and robust; their upper sides carry penicillate hairs like those of the dorsum; the ventral hairs are long and pointed. Ambulacra stout, with two terminal hairs of moderate length. Free chelicerae, armed with a short process, which reaches a little beyond the end of the segment, seen in their natural position from above, the processes are straight and directed outwards, and are bluntly pointed. (The chelicerae of the unique Irish specimen have not been dissected.) Female unknown.

Habitat.—Some years ago Mr. A. D. Michael kindly sent me a few littoral mites which he found on the south-west coast of England. One of these, from the shore at Swanage, is referable to the present species. In July, 1915, I found a male, apparently not quite mature, under seaweeds washed up on the Orange Lower shore at Malahide. The weeds were in a moist decaying condition, and were resting on the bare limestone rocks.

Thinoseius gen. nov.

(*Female*). A form belonging to the family Laelaptidae; general structure resembling that of the genus Lasioseius, but in the adult the body is enclosed

in a continuous test, with the exception of the sternal and pedal regions. Sternum absent (though present in the *nympha coleoptrata* stage). Endopodial and metapodial plates well developed. Ambulacra on all pairs of legs. Type *Thinoseius Berlesii* sp. nov.

Thinoseius Berlesii sp. nov. (Pl. XXII, fig. 9 a, e.)

Female (fig. 9 a, b): Length about 760μ; breadth, 540μ, in the Malahide specimens (a Swanage specimen measures 845μ × 590μ). Colour during life, light brown, with a conspicuous darker spot on each side of the dorsum. Shape, broad and pyriform, end margin sometimes flattened. Epidermis very minutely shagreened, also marked towards margins with waved lines, and there are traces of a polygonal network on the dorsal surface. Hairs short and sparse. Sternum and jugular plates absent, the sternal region being very weakly chitinized; four pairs of hairs present. Tritosternum normal. Endopodial plates well developed, usually with sharp processes, as in the genus Halolaelaps; metapodial plate, a thin chitinous band, bounding the basal segment of the fourth leg. Peritreme sinuate, enclosed with and bordering the ventral plate. Genital plate of the usual trapezoidal form, slightly longer than broad; anal plate fused in the chitinized cuticle of the ventral region. The front margin of the last is sinuate, and placed near it is a pair of small ring-like structures embedded in the cuticle.

Capitulum, with a short and broad maxillary plate, rounded behind, with three pairs of moderately long hairs; maxillary lobes normal. Epistomal margin semicircular, armed with five or six long and stout spines, which are branched at their extremities. Chelicerae (fig. 9 c) very small. Palps robust (length, about 180μ); second segment with three short dorsal spines; inner and outer margins with one fine hair. Legs of moderate length, robust; hair armature weak; tarsi not attenuated, all pairs with ambulacra. The last (fig. 9 d) carry a pair of bristle-like lateral lobes resembling those of the genus Episeius. Male unknown.

Nympha coleoptrata (fig. 9*e*).—Length, about 500μ; breadth, 300μ. Shape, less strongly pyriform than in the adult; side and end margins flattened; hair armature relatively stronger. Epidermis minutely punctured and reticulate. Sternal shield of the usual V-shape; front margin strongly convex. Anal plate small and heart-shaped. Peritreme long and curved inwards; inner margin serrated near the extremity. A pair of small lunate inguinal plates are present.

The most interesting characteristic of this new genus is the absence of a sternal shield, a very rare feature in the Gamasoidea. Berlese has described

(13) and figured (15), an Italian form Asternoseius, in which there is no sternum; the only resemblance between this and Thinoseius is the general hardening of the body cuticle. There is little doubt that the loss of the sternum in the adult is here a case of retrogression, as it is present and is of the usual form in at least one nymph stage.

HABITAT.—Found in company with the preceding species under decaying seaweeds washed into the Orange Lichen zone, July, 1915. On another occasion it was found with numbers of the *nympha coleoptrata* form among damp sand and shells under a dry top layer in the same zone. Mr. A. D. Michael has taken it on the seashore at Swanage (Dorset).

Family **ZERCONIDAE**

Thinozercon Michaeli Halbt. (Pl. XXII, fig. 10.)

1915 Halbert **25**, p. 82.

The male, female, and nymph of this interesting species were first found under stones on an estuarine part of the seashore flooded by the tides at Westport, in July, 1911. Subsequently both sexes occurred under stones a little below high-water mark on the south shore of Howth, April, 1913. More recently Mr. Southern collected it in the Orange Lichen zone at Lough Hyne, on the Cork coast, November, 1916. I did not succeed in finding it either at Ardfry or Malahide.

Berlese was under the impression that this genus is synonymous with Iphidinychus, a South American form (15), and is so recorded by him (16). He has recently seen specimens of Thinozercon, and agrees with me that they represent a very distinct genus (18). A figure showing the arrangement of the ventral plates of the female is given in the present paper (fig. 10); the presence of two paired sternal shields is of interest. There is considerable justification for making this remarkable form the type of a separate family (see **25**; for the present it is included in the Zerconidae.

Family **UROPODIDAE.**

The identification of the four species of this family living habitually between tide-marks, and in salt marshes on the Irish coast, has given some trouble, partly due to the fact that the "*Uropoda orchestidiarum*" of authors included two species belonging to different genera. I believe the correct names of the shore species have now been placed beyond doubt; and a table containing the most essential characters by which they can be separated may help to prevent further confusion.

A.—Marginal plates absent from the dorsum. First pair of legs without ambulacra and claws. Male genital foramen opposite fourth pair of legs. Size, about 690μ × 460μ (Pl. XXII, fig. 11).

1. *Phaulocylliba littoralis* (Trouess.).

B.—Marginal plates present. First pair of legs with ambulacra and claws. Male foramen opposite third pair of legs.

Ends of marginal plates not joined; their extremities removed some distance from the posterior margin of the dorsal shield. Form broadly ovate, with a few short marginal hairs. Metapodial line distinct. Size variable, averaging about 950μ × 720μ (Pl. XXII, fig. 12).

2. *Phaulodinychus repletus* Berlese.

Marginal plates more uniformly broad, and united by a narrow chitinous band behind the dorsal shield. Body margins with numerous strongly curved hairs. Metapodial line obsolete. Size about 690μ × 460μ (Pl. XXII, fig. 13).

3. *Phaulodinychus orchestiidarum* (Barrois).

Ends of marginal plates not joined, reaching, or almost reaching, the posterior margin of the dorsal shield. All plates strongly and regularly punctured. A row of T-shaped hairs on side margins of body. Size smaller, about 614μ × 440μ (Pl. XXII, fig. 14).

4. *Trachyuropoda minor* (Halbt.).

Phaulocylliba littoralis (Trouess). (Pl. XXII, fig. 11.)

1889 *Uropoda orchestiidarum* (partim) Berl. et Trouess. **20**, p. 125. 1902 *Discopoma littorale* Trouessart **52**, p. 41. 1915 *Phaulocylliba Berlesii* Halbert **25**, p. 86. 1917 Berlese **19**, p. 11. 1918 Berlese "Redia" xiii, p. 190.

Both sexes were found between damp limestone flakes in the Pelvetia and Spiralis zones on the rocky shore at Malahide, May and June. At Ardfry the male and nymphs occurred under boulders resting on gravel and shells in the Vesiculosus and Serratus zones, June. In these localities it seems the rarest of the four intertidal species of Uropodidae. The first recorded British specimens were found under stones in Howth Harbour in November, 1913. The ventral surface of the male is figured (fig. 11).

Phaulodinychus repletus Berl. (Pl. XXII, fig. 12 a, b.)

1903 Berlese **7**b, p. 269. 1915 *Haluropoda interrupta* Halbert **25**, p. 88 1916 Berlese **17**, p. 136. 1917 Berlese **19**, p. 11. 1918 Hull **26**, p. 50.

An abundant species in estuaries and salt marshes, and also on the open seashore under stones and decaying seaweeds, usually in the Orange Lichen

zone. Malahide estuary, Howth, Dollymount, Bray, &c., on the Dublin Coast. On the west coast of Ireland it is equally common at Ardfry, Westport, and Mulranny districts. The adult and *nympha homeomorpha* stages are figured (fig. 12 a, b).

Phaulodinychus orchestiidarum (Barrois). (Pl. XXII, fig. 13 a, d.)

1887 *Uropoda orchestiidarum* Barrois (nymph) **1**. 1889 Berlese et Trouessart **20**. 1902 Trouessart **52**, p. 38. 1916 Berlese **17**, p. 136. 1918 Berlese "Redia" xiii, p. 190.

Usually a common species where it occurs, ranging from the Pelvetia down to the Serratus zone. At Malahide it lives chiefly between moist limestone flakes where there is some sandy mud. At Ardfry the habitat is under stones partly embedded in damp mud.

The species was described by Barrois from the nymphal form which he found attached to the common shore Amphipods, Orchestes, and Talitrus (**1**). The female does not seem to have been described; it may be recognized by the characters indicated in the preceding table and the accompanying figures Pl. XXII, fig. 13 a, d).

Trachyuropoda minor (Halbt.). (Pl. XXII, fig. 14.)

1915 *Halouropoda minor* Halbert **25**, p. 90.

A fairly common species often found in company with *Phaulodinychus replctus* on estuarine shores. At Malahide it was observed in the Orange Lichen and Pelvetia zones between rather dry limestone flakes and on calcareous tuffa, where a small stream flows on to the seashore; also a single specimen, in the *nympha homeomorpha* stage, fixed on the under side of *Orchestia gammarus*. It occurs in the same zones at Ardfry under stones resting on mud. Many specimens were once taken from amongst the debris of old nests of Puffins and Gulls on The Bill rocks off the Mayo coast. Berlese refers (in litt.) this species to his sub-genus Dinychura, which is recorded in a short note in (**15**, p. 85).

Dinychus sp.

The only example of this genus found during our shore work is immature, and I have not succeeded in determining the species. It occurred under damp flakes in the uppermost Orange Lichen zone, immediately under the "grassy sward," and is possibly not a regular denizen of the intertidal shore.

Sub-Order ORIBATOIDEA.

Family **ORIBATIDAE.**

Oribata setosa C. L. Koch.

Malahide, under more or less dry flakes in the Orange Lichen zone; also under refuse lying on the rocks in the same zone, April and May. A widely distributed species.

Oribata quadricornuta Michael.

Found by Mr. Southern in the Orange Lichen zone at Lough Hyne, Co. Cork, November, 1916. At Mulranny it was also found under stones on the seashore in September.

Oribata quadrivertex sp. nov. (Pl. XXII, fig. 15 a, b.)

A small, compactly formed species, standing nearest to the "*pyriformis*" group. It is remarkable on account of the short, strongly clubbed pseudostigmatic organs, the square vertex, and the peculiar form of the lamellae, which in the long, slender cusps bear some resemblance to those of *Oribata gracilis*. Occurs in salt marshes.

Length, about 450μ; breadth, 280μ, and slightly larger. Colour, yellowish brown; texture smooth and shining. Cephalothorax (fig. 15 a) rather short, about one quarter as long as the abdomen, and much narrower. Rostrum bluntly pointed; dorso-vertex quadrate, half hidden by the central extension of the dorsum. The lamellae are narrow, uniform bands connected by an equally broad translamella; cusps rather long and slender, and just broad enough at their extremities to carry the lamellar hairs; these are stout and curved strongly downwards over the rostrum. Interlamellar hairs long, very stout, and minutely serrated; they spring from a transverse bar which bounds the posterior margin of the dorso-vertex. Pseudostigmatic organs (fig. 15 b) close to the middle line of the body, short and strongly clavate, slightly incurved, and their stems are mostly hidden under the margin of the dorsum. The stigmata are cup-shaped, shallow, and their margins are but little raised. First tectopedium a long curved blade.

Abdomen oblong, shaped much as in *O. gracilis*, though less strongly narrowed in front, evenly rounded at end margin; pteromorphae weakly developed. Front margin produced at centre in a small rounded prominence, dorsum with about eight pairs of minute hairs, two pairs on end margin upturned and stronger than the others; there is a circular pore near the sides of the dorsum. Genital and anal plates large, of almost equal size, each enclosed by broad chitinous margins. Epimera without the distinct inner

borders present in *O. gracilis* and other species. Legs normal, last pair rather short, scarcely reaching the end of the dorsum; the lengths are about 495μ, 308μ, 462μ, 286μ; central claw much stronger than the others.

Habitat.—Not uncommon under dead shells in a salt marsh on Malahide Island, May, 1915. It also occurs under stones lying on mud at the mouth of a small stream flowing into the Malahide estuary, June, 1915. On the west coast it was found under stones on a grassy sward just above the Pelvetia zone at Ardfry in a place covered at high tides, June, 1916.

Dr. Berlese refers this species to his sub-genus Punctoribates, which was apparently established without diagnosis, and with *O. punctum* C. L. Koch as the type-species. Koch's figure shows a small globular species, with rather long, clubbed, pseudostigmatic organs. It is also recorded in the works of Canestrini and Fanzago. The former says (**23**, p. 19): "Setole stimmatiche mediocri claviformes." Yet it is figured by Berlese (**2**, fasc. xxx, No. 2) as a species with short lamellae, united by a broad translamella and long leaf-shaped pseudostigmatic organs. In a later reference (**5**, p. 66) he records *O. arcuifera* Michael as synonymous with *O. punctum*, so there would seem to be a difference of opinion as to the characteristics of the last-named species.

Oribata avenifera Michael.

Found under limestone flakes in the upper Pelvetia zone at Malahide, June. Also under stones a little above high-water mark in the Orange Lichen zone, April.

As Michael (**36**) has pointed out, the cuticle of this species is very minutely punctured, but it is not correct to describe the notogaster as hairless; as a matter of fact there are four pairs of short hairs, as well as an equal number of paired pores on the dorsal surface. Not previously recorded from Ireland.

Oribata Lucasii Nicolet.

Found crawling on a green alga-like weed in the Broadmeadow Water estuary at Malahide, June, 1915. The species had been previously found under fir bark on Achill Island, and on Lambay (**25**). A generally distributed British species.

Oribata parmeliae Michael.

Common under lichens growing on large boulders on the seashore at Howth, in a place at least occasionally splashed by the tides. Apparently a coast species, Mr. Michael records it as feeding upon lichens (*Parmelia*) growing on granite rock at Land's End, Cornwall (**36**).

Oribatula similis Michael.

Found in the Pelvetia zone and upwards at Ardfry, under stones resting on a peaty soil, dryish when the tide recedes, but flooded at high tides. Also under stones on a grassy sward, just above the Pelvetia zone, June; occurs on the seashore at Baldoyle in a similar habitat. A generally distributed British species.

Oribatula venusta Berl.

1908 Berlese **12**, p. 8. 1910 Berlese **10**, p. 229. 1910 Halbert **25**, p. 102.

This is evidently a coast species in Ireland, though Berlese does not state the habitat of the original Norwegian specimens. It was first recorded as a British species from the Mayo coast (**25**), where it is quite common under stones a little above high-water mark, and also on the adjoining sandhill, in September. At Ardfry it occurs under stones resting on sand and decayed seaweed in the Orange Lichen zone, June, 1916. At Malahide under hard limestone flakes in the lower part of the Orange Lichen zone in company with *Ochthebius Lejolesii*, and other littoral species. I have also found it on Lambay Island in October, and amongst lichens and moss on the Portmarnock sandhills in January.

Oribatula saxicola sp. nov. (Pl. XXII, fig. 16 a, b.)

A small sluggish species belonging to the "*tibialis*" section of the genus Oribatula. Lives in rock fissures. Length, 490μ; breadth, 286μ. Colour light brown. Body strongly flattened, surface apparently smooth and shining, but in reality excessively minutely punctured. Cephalothorax (fig. 16a) comparatively large, rostrum bluntly pointed, lamellae narrow blades on edge and tapering to a point, placed partly on the marginal slope of the cephalothorax; lamellar hair long and minutely setose, it springs from a pore lying immediately in front of the extremity of the lamellae. Translamella absent, or a mere line. The pseudostigmata are hidden under the dorsum, though occasionally the corners project a little. Pseudostigmatic organs (fig. 16 b) with slender stalks and strongly clubbed extremities.

Abdomen with the shoulders evenly expanded; breadth about two-thirds of the length. On the dorsum there are three or four pairs of pores and short hairs, and at least three pairs of upturned marginal hairs are noticeable on the posterior third of the body. Legs robust and a little longer than in *O. tibialis*; claws unequal.

The following notes may be of use in separating the present from the allied species:—From *O. similis* (Michael) easily recognized by the tridactyle claws. From *O. tibialis* (Nicolet), to which it is nearly allied, by the shorter

and more strongly clubbed pseudostigmatic organs and the more expanded shoulders. From *O. exilis* (Nicolet) and *O. venusta* Berl., by the strongly narrowed lamellae and the more elongate form of the body.

HABITAT.—Occurs in numbers under dry or slightly damp flakes in the Orange Lichen zone on the rocky shore at Malahide, often in company with *Rhyncholophus arancoides* Berlese. I have also found it under lichens growing on boulders on the seashore at Howth with such species as *Oribata parmeliae* and *Nothrus invenustus*.

Scutovertex bilineatus Michael. (Pl. XXII, fig. 18.)

Under moist limestone flakes in the Orange Lichen zone at Malahide, in places where there were also black encrusting lichens, February. The adults and nymphs were clustered round the edges of the flakes. At Ardfry it occurs under stones resting on mud in the Pelvetia zone and upwards to the sward above the Orange Lichen zone, June. Common at Westport under stones on the seashore at a little above high-water mark, July.

Scutovertex Spoofi Oudms. (Pl. XXII, fig. 17 a, b.)

1900 Oudemans, **39**, p. 112. 1901 *S. bilineatus* Oudemans **40**, p. 79.

Described by Oudemans from specimens found in Finland by Dr. A. R. Spoof "in spawn of Lymnaea in sub-saline water" (**39**). In a later paper he records it as synonymous with *S. bilineatus* Michael (**40**). At Malahide I have found both *S. bilineatus* and *S. Spoofi*, which I consider is a distinct species. Apart from other differences, they may be readily separated by the structure of the claws. Michael has accurately described these in the case of *S. bilineatus* (fig. 18): "The claws are monodactyle, but there is a minute projection at each side of the claw, and two long fine hairs sharply hooked at their distal ends," &c. (**36**). On the other hand, the claws, though of unequal thicknesses, are undoubtedly three in number in *S. Spoofi*, and are just as we find them in *S. sculptus* and other tridactyle species. It would appear likely that the lateral claws are rudimentary in *S. bilineatus*, and are represented by the minute projections on each side of the middle claw, as described by Michael. These can be seen distinctly under a high magnification; and it may be noted that the hooked hairs are also present in *S. Spoofi*. The latter species also differs from *S. bilineatus* in the following characters:—The cephalothorax (fig. 17a) is larger, and the central furrow is more defined; the abdomen is more strongly narrowed in front, so that it is less regularly oval than in *bilineatus*; it is also less coarsely punctured and the longitudinal

ridges are much less distinct. Beyond the middle there are two large pores which are very conspicuous.

HABITAT.—Occurs between moist limestone flakes on the rocky shore at Malahide in the Orange Lichen and Pelvetia zones, and somewhat doubtfully in the Spiralis zone. In these habitats they were in small colonies round the outer edges of the flakes, sometimes in company with the Tyroglyphid mite *Hyadesia fusca*; also under stones resting on sandy mud at the mouth of a small stream flowing into Malahide estuary. At Mulranny it occurred under stones on the seashore. The dates of capture range from May to September. Not previously recorded from the Britannic area.

Scutovertex corrugatus Michael.

Adults and nymphs common under stones on the Island saltmarsh in Malahide estuary, May. At Mulranny it is very abundant under stones at the mouth of a small stream flowing into Bellacragher Bay, September (**25**).

Scutovertex maculatus Michael.

Under tufts of a lichen (*Lichina pygmaea*) growing on exposed rock surfaces at Malahide, in places washed by high tides; with it were numbers of a small green Amphipod (*Hyale Prevostii* M.E.). Has also occurred on Lambay Island (**25**).

Scutovertex perforatus Berl. (Pl. XXII, fig. 19.)

1910 Berlese **13**, p. 265. 1913 Berlese **15**, p. 98.

A few specimens were found under stones on a grassy sward amongst Sea Purslane (*Atriplex portulacoides*) and other estuarine plants within reach of high tides at Baldoyle, on the Dublin coast, November, 1917. This is by far the smallest known species of Scutovertex; the Irish specimens, measuring $353\mu \times 176\mu$, are even a shade smaller than the Italian ($390\mu \times 210\mu$). Notable features are the long setiform pseudostigmatic organs and the clear circular spot near the front margin of the dorsum. In the brief description of the species (**13**) Berlese says: "Derma dorsi aeque punctulatum." The dark spots on the dorsum are really raised granules; these are replaced on the cephalothorax (fig. 19) by ridges. Not previously recorded from Britain.

Hermannia scabra (L. Koch).

Amongst calcareous tuffa on a wall where fresh water flows through at Malahide, probably washed by high tides, June; also under flakes in the Orange Lichen zone, dry to moist, August. At Ardfry it occurred under stones resting on sandy mud and gravel in the Orange Lichen and Pelvetia

zones. At Mulranny, on the Mayo coast, it is abundant under stones just above high-water mark, September; and it was found in the debris of old nests of sea birds on the Bill Rocks, as recorded in (**25**).

Hermannia reticulata Thor.

Malahide estuary, found crawling on a green alga-like weed on bank of the Broadmeadow Water, with *Oribata Lucasii* Nic. Recorded from Clare Island and the Westport district in **25**.

Nothrus invenustus Michael.

Found under lichens (*Lichena pygmaea*) growing on large boulders on the south shore of Howth, Co. Dublin. Splashed by high tides, though probably not intertidal.

Sub-Order SARCOPTOIDEA.

Family **TYROGLYPHIDAE**.

Tyroglyphus littoralis sp. nov. (Pl. XXII, fig. 20 a, d.)

The discovery of an undescribed species of this family living on the sea-shore is of interest. As far as I am aware, the only previously known Tyroglyphids found in this habitat are the species of Hyadesia, all of which are intertidal. (I once found a colony of *Tyroglyphus longior* living between limestone flakes in the Orange Lichen zone at Malahide, though probably in this case the mites were introduced with debris deposited on the shore. It is a species of varied habitats, and is of almost world-wide distribution.)

Female.—Length about 616μ; breadth, 418μ. The entire animal is pyriform. Texture smooth; hyaline, the expulsory vesicles appearing as large brown spots. Cephalothorax of the usual shape, distinctly narrower than abdomen, strongly constricted in front, so that the rostral part is rather long and narrow, and much as in *T. heterocomus* Michael (**37**, Pl. XXXIII, fig. 1). Cephalothoracic hairs in a row; the two outer ones are very long, inner ones short (length about 66μ), rostral hairs reaching a little beyond end of mandibles. Abdomen with rather prominent humeral corners, slightly constricted behind these, thence widening gradually to beyond the middle, and diminishing to the end margin, which is produced at the centre in a pointed process. Apparently this process is not homologous with the tubular *bursa copulatrix* found in the genus Glycyphagus. On the dorsum there are five pairs of long plain hairs, three of which are marginal, and there are four pairs of comparatively short hairs placed on or near the anterior margin.

The epimeral area and the genital foramen are much as in *T. siro*; close to the end margin of the ventral side are two long hairs, and there are a few pairs of short hairs. Legs normal; the fourth segments carry the usual long hair, and a strong curved spine springs from the fifth segment of first two pairs.

Male.—The only male found was mounted in glycerine medium, so that the shape cannot be exactly described. A drawing (fig. 20 c) made shortly after capture is probably sufficiently accurate. Much smaller than female, length about 360μ; breadth, 220μ; broadest across the fore part of the abdomen; the posterior margin is clearly indented at the centre, and immediately over the notch is a small papilla. All the hairs of upper surface as in female, but relatively much longer. Expulsory vesicles very large. The genital plates form a semicircular shield, and there are two copulatory discs closely resembling the same structures in *Histiogaster entomophagus* (**37**, Pl. XXVII, fig. 20 d). Legs robust and characteristic of the genus, except for the last pair; the tarsal segments of these, instead of having two small raised discs near the middle of the segment, have only one disc, which is placed close to the base on the upper and inner surface (fig. 20 d).

HABITAT.—Two females and a male found in moist decaying seaweeds amongst shingle close to the harbour at Howth, Co. Dublin. The locality is slightly above high-water mark, and evidently within reach of high tides, September, 1918.

Family **HYADESIDAE**.

Hyadesia fusca (Lohm.).

1894 *Lentungula fusca* **32**, p. 86. 1899 Canestrini and Kramer **24**, p. 136. 1901 Michael **37**, p. 196. 1907 Lohmann **34**, p. 368. 1915 Halbert **25**, p. 108.

Adults and nymphs occurred in numbers at the edges of rock crevices in the Pelvetia and Spiralis zones at Malahide, June, 1916. In the same locality it was found fairly commonly in rock-pools containing much Enteromopha, in the Orange Lichen zone, July and September. First recorded as a British species from Clare Island, where it is abundant amongst coralline seaweeds in rock-pools. Lohmann gives its distribution as the North Sea and the Baltic.

Sub-Order TROMBIDOIDEA.

Family **EUPODIDAE**.

Lasiotydaeus brevistylus sp. nov. (Pl. XXIII, fig. a, b.)

The genus Lasiotydaeus was founded by Berlese in (**12**), the type-species being *L. glycyphaginus* Berl. In a later paper (**10**) he establishes a new sub-genus Melanotydaeus, in which the rostrum is well below, or hidden by, the cephalothorax, and the body hairs are short. The present species belongs to this sub-genus, of which Berlese describes five species as occurring amongst mosses in Italy.

In general structure *L. brevistylus* is allied to *L. styliger*, described and figured in (**10**), so much so that with comparative notes and a figure a detailed description is not necessary. A good structural difference occurs in the palpi: in *L. styliger* the two terminal processes of the last segment are very long and slender (see **10**, fig. 12a), and are much longer than the basal part of the segment. In the present species these processes are stouter and much shorter (fig. 22b), about equalling the basal part in length. In some female specimens the processes are even shorter than is figured. The lower process is stouter than the upper one, which is curved. Cephalothorax about a third as long as abdomen, and the rostrum is generally hidden, though in some specimens the apex is visible. The legs are a little stouter. The colouring appears to be a very dark olive, and the legs are red. The size ranges from about 250μ to 280μ in length, by 150μ in breadth.

Habitat.—A fairly common species in the Orange Lichen and Pelvetia zones on the rocky shore at Malahide, under flakes in from dry to moist situations. The dates of capture are in May and June.

Rhagidia halophila (Lab.)

1851 *Gamasus halophilus* Laboulbène **30**, p. 295. 1889 *Nemercia halophila* Moniez **38**, p. 270. 1915 Halbert **25**, p. 110. 1916 Hull **26**, p. 35.

This active, orange-coloured Acarid is one of the most characteristic species of the intertidal area, occurring from the Orange Lichen down to the Serratus zone at Malahide and Ardfry. Its favourite haunts are between rock flakes and under stones embedded in sandy mud in from moist to wet places. During low water it may be seen running with great speed on the rock surfaces. The dates of capture range from March to November, and it probably occurs throughout the winter months.

Eupodes variegatus Koch var. **halophilus** nov.

In the Serratus zone at Ardfry there occurs a form of Eupodes which seems to be a variety of the common European species *E. variegatus* Koch. The general structure is the same as in the typical form. The ovigerous female measures about 666μ in length, and the breadth at the shoulders is about 310μ. Colour pale rose. It differs from the typical form in the shorter body hairs; the group at extremity of abdomen number six or seven hairs, the longest measuring not more than 70μ. All hairs minutely setose. The first pair of legs measure about 666μ, and the remaining three pairs are a little longer and more slender than in the type, and the femora of the last pair are less thickened. In the male, of which only one specimen was found, the body is smaller than in the female, the length being 530μ. The size is apparently somewhat larger than in the type. A male of *E. variegatus*, found in the west of Ireland, measures 400μ.

Chromotydaeus ovatus (C. L. Koch).

1838 *Penthaleus ovatus* C. L. Koch **28**, Fasc. 18. 1886 Canestrini **23**, p. 225. 1891 Berlese **2**, Fasc. LX., n. 2. 1912 Sig. Thor **45**, p. 237. 1915 Halbert **25**, p. 111.

The occurrence of this species under stones on the seashore at Mulranny has already been recorded (**25**), and I have since found it commonly as an intertidal species at Ardfry, in the Pelvetia and Spiralis zones. It has not been found at Malahide, so that it may possibly be a species of western range in Ireland. The specimens would seem to be uniformly longer than the Italian form; both Berlese and Canestrini record the length as 400μ, while the Irish shore specimens are about 640μ in length, and the breadth varies from 410μ to 460μ. Dr. Berlese, who has seen the Irish form, says it is the present species.

Thor records its occurrence on the western shores of Norway in the *Balanus balanoides* zone, and under *Fucus vesiculosus*.

Halotydaeus hydrodromus (Berl. et Trouess).

1889 *Notophallus hydrodromus* Berlese et Trouessart **20**, p. 21. 1891 *Halotydaeus hydrodromus* Berlese **2**, Fasc. LX, n. 10. 1915 Halbert **25**, p. 111. 1918 Hull **26**, p. 33.

Usually a common species on the seashore, ranging from the Pelvetia down to the Serratus zone at Malahide and Ardfry. Though less agile than *Rhagidia halophila*, it is almost as great a rover on the rock surfaces when the tide recedes; and it also occurs in colonies between flakes. On the west

coast of Ireland, at Mulranny, it is represented by a well-marked colour variety, *albolineatus* Halbt. (**25**), which was found in large colonies under deeply embedded stones well below high-water mark.

Family **ALICHIDAE**

Alicus oblongus sp. nov. (Pl. XXIII, fig. 23 a, c.)

A very distinct species, which may be recognized by the form of the body and the hair armature of the cephalothorax.

Colour, white, tinged with rose. Length, about 350μ; breadth, 160μ. The body is of an elongate oval shape; shoulders not prominent, and but slightly constricted. Hair armature sparse, of short, strongly plumose spines (fig. 23 c). Epidermis minutely striated. The cephalothorax (fig. 23 a) is relatively large and wide at the base. Eyes small, placed on sinuous ridges close to the side margins. There are the usual two pairs of long sensory hairs, bearing secondary hairs, and springing from well-marked pores. Behind these there is another pair of short and more strongly "feathered" hairs placed on a small circular plate, and there is another minute pair placed in a line with the long sensory hairs. All of these hairs are enclosed in an oblong area defined by two sub-cutaneous chitinous rods, which run forward to the front margin. The five segmented palpi (fig. 23 b) are rather short, with stout basal segments, a few plumose spines; and there is a stout adpressed spine on the upper surface of fourth segment. The mandibles are rather slender, chelae armed with a few minute teeth, a single hair on outer surface.

Legs decidedly short; the three first pairs are of about equal length, last pair the longest (130μ). All segments with a few plumose hairs; sixth segment has also a bent spine on the dorsal side.

Habitat.—Two specimens found between dry limestone flakes in the uppermost Orange Lichen zone at Malahide (24th May, 1915). Apparently this and the following species of Alicus occur only in the upper limit of the Orange Lichen zone, and it is possible they are not really denizens of the intertidal area.

Alicus latus sp. nov. (Pl. XXIII, fig. 24 a, c.)

A species belonging to the sub-genus *Leptalicus*, Berlese. Length, about 220μ (not including mandibles); breadth, 100μ. Colour, during life, a very pale rose. The body (fig. 24 a) is robustly formed and sub-quadrate. Epidermis finely lined, and there is a very spare covering of plumose hairs (fig. 24 b, c), which are longer and more distinctly clavate towards end of body.

Cephalothorax relatively small and much narrower than abdomen; front margin slightly concave, with a small central papilla. There are two long plumose hairs, and a much shorter third pair near the middle line; outside of these are three pairs of very short, fine, marginal hairs. Eyes small, placed on a ridge running from posterior margin to anterior corner of cephalothorax; the latter are pointed.

Abdomen, shoulders wide and prominent; lying between them is a central wedge-shaped area; anterior part marked off by a constriction. Mandibles very broad. Legs comparatively long and robust, with weak plumose hairs, and without the clavate hairs present on the body.

This species is allied to *A. elongatus* Berlese and *A. Paolii* Berlese. It is apparently nearest the latter species, differing from it in the much smaller cephalothorax and shorter sensory hairs. Dr. Berlese has kindly sent me a drawing of *A. Paolii*, which shows these characters much clearer than they appear in the published figure (**9**, Pl. XVIII, fig. 17). It differs from both of these species in the more robust build and more uniform breadth of the abdomen. The body hairs are not so long, and the legs are apparently shorter and stouter. The sub-genus Leptalicus was established by Berlese (**9**) without a diagnosis; *A. Paolii* is the type species.

HABITAT.—I found this fragile species on at least four occasions, during May and June, in the Orange Lichen zone at Malahide. It appears to live in small colonies between rotten flakes where there is clay detritus.

Nanorchestes amphibius Top. et Trouess.

1890 Topsent et Trouessart **47**.

An abundant species in the Orange Lichen, Pelvetia, and Spiralis zones on the rocky shore at Malahide. Large colonies of the larvae, nymphs, and adults may be found during the summer and autumn months; and clusters of the salmon-coloured eggs are noticeable deposited round the edge of rock fissures in the early summer. At Ardfry it was found on the margin of a small saline pond close to the seashore.

This is one of the few saltatorial mites, and it both runs and jumps with great activity in bright weather, even on the surfaces of rock pools. It was observed at various dates from February to November. Hirst has recorded it from the Isle of Wight. A figure of the peculiar modified hairs of this species is given in the present paper (Pl. XXIII, fig. 25).

Family **BDELLIDAE**.

Bdella littoralis (L.).

A common and characteristic shore species. At Malahide and Ardfry it was found from the Orange Lichen down to the Vesiculosus zones, living in

rock fissures, and it may often be seen running on the rocks. The shore records under the name *B. capillata* Kramer in (**25**) should refer to the present species. Thor records this as the type-species of the genus Molgus, and gives the following synonymy: *Molgus littoralis* (Linné), 1758. *M. arcticus* (Thorell), 1871. *M. villosus* (Kramer), 1883. *M. Basteri* (Michael), 1896 (Zool. Anz. XLII, p. 30).

Bdella decipiens Thor.

Equally common with the last at Malahide, and frequenting the same zones in from almost dry to moist places. It often occurs in company with the preceding species, and both have been observed feeding on Nanorchestes on the rocky shore at Malahide. The synonymy and distribution are recorded in (**25**).

Cyta latirostris (Herm.).

A few specimens found under stones in Malahide estuary, May, 1915; shore of Mweeloon Bay at Ardfry, June, 1916.

The typical form of this species is figured by Berlese (**2**, Fasc. LIX, n. 4) of a rosy-red colour, while the specimens from the above localities are of a dull yellow; they are also larger, the length being at least 900μ, not including the mandibles. It is a widely distributed species.

Family **RHAPHIGNATHIDAE**.

Rhaphignathus scutatus sp. nov. (Pl. XXIII, 26 a, b.)

Colour, bright red. Length, 518μ; breadth, 330μ; shape, a rather broad oval; epidermis striated, except on the dorsal shields, which are minutely punctured, and are only very faintly reticulate. Cephalothorax covered by a large shield, with three pairs of strong marginal hairs; immediately behind the first pair are the single-lensed eyes; the hinder margin of the shield is weakly emarginate. The abdomen is also protected by a large dorsal plate, carrying six pairs of hairs; front margin straight; end margin evenly rounded, leaving a rather broad uncovered area at the end of the abdomen, where there are two pairs of hairs. The shoulder bristles are placed on small oval plates. Epimera much as in *R. siculus*. Anal plate rounded in front and tapering to a point at end, rather distinctly reticulate on its anterior part (length, 170μ; breadth, 125μ). Mandibles a little shorter and more robust than on *R. siculus*. Palps (fig. 26 b) stout; a strong hair springs from the upper surface of second and third segments. Terminal appendage about reaching to end of fourth segment, with four hairs and a trifid hair.

This species stands nearest to *R. siculus* Berl. (**2** Fasc. XXII, n. 3), from which it differs in the larger size, less elongate shape, longer legs, and the

polygonal reticulation is very faint; it is clearly marked only on the front of the anal shield.

HABITAT.—Occurred under stones on the salt marsh on Malahide Island, 30th May, 1915. I have also found it on a marshy sward just above the Pelvetia zone at Ardfry, County Galway.

Stigmaeus rhodomelas var. **fissuricola** nov. (Pl. XXIII, fig. 27 a, c.)

A species belonging to Stigmaeus (s. str.) as recently defined by Berlese (**10**).

Length variable, ranging from 330 to 380μ in mature specimens; breadth 150μ; colour a shining orange; form elongate (fig. 27 a). Cephalothorax with rounded sides, well marked off from abdomen in most specimens; central shield oblong, almost reaching the front and hinder margins, carrying three pairs of hairs (fig. 27 b), the second pair very long. Abdomen with pronounced "shoulders," and marked lateral indentations, one beyond the middle, the other close to the end of the body. Central shield long, oval, with two pairs of hairs; behind this is a small plate, equally broad, but less than one-third as long as the preceding shield. On each side of the second plate are two pairs of small hair-bearing plates. End of body truncated and bordered by a narrow plate, carrying two long hairs. There are also two pairs of marginal hairs on the anterior part of the abdomen. The genito-anal shield is truncated in front, not quite reaching the last pair of epimera, with three stout marginal hairs on its anterior part.

The mouth parts (fig. 27 c) are large, and the mandibles (length about 70μ) robust. The five segmented palpi are long and stout; third segment as long as the three terminal ones together, with three long hairs; the terminal appendage reaches well beyond the claw. Legs comparatively long and robust; hair armature as in figure. The fourth segment of the last two pairs without hairs.

Appears to differ from the typical form in the more elongate shape, in the absence of lateral plates at each side of the large central abdominal shield, and by the fact that this shield is followed by a smaller transverse plate. The hair armature is longer. I cannot find any trace of pigmented eyes in my specimens.

HABITAT.—An active, orange-coloured species, which is common in the Orange Lichen and Pelvetia zones at Malahide. It lives chiefly in horizontal fissures in the limestone rocks, in from almost dry to damp places. The dates of capture range from February to October.

Family **RHYNCHOLOPHIDAE.**

No attempt has been made to refer the following species of Rhyncholophus to any of the genera or sub-genera described in recent years. Authors are evidently at variance as to their application, and in one or two recently published papers the confusion has been increased. It seems to me that many questions of synonymy and priority must be definitely settled before these names can be used with certainty.

The first three species recorded here have been referred to the genus Achorolophus by Dr. Berlese, either in the original descriptions or *in lit.* This was diagnosed as a new sub-genus in his Monograph on Italian Mites (**2**. Fasc. LIX. n. 1), and *Rhyncholophus nemorum* is the type-species. It was subsequently (**4**. p. 87) raised to generic rank, and applied to a group of species of which the first mentioned is *R. quisquiliarius* (Herm.), but the earlier reference must apply, consequently the name Achorolophus, whatever may be the fate of this genus, cannot be used for the "*R. rubripes*" group of species.

Rhyncholophus araneoides (Berl.). (Pl. XXIII. fig. 28 a, b.)

1910 *Achorolophus araneoides* Berl. **14**. p. 349.

An abundant species during the summer months on the limestone rocks at Malahide, usually in the upper part of the Orange Lichen zone.

An active, bright-red coloured mite. The body is comparatively small (length about 1000μ), and of a rather quadrate shape. The legs are robust and very long, the first pair measuring about 1460μ, not including the projecting part of the epimera. The crista is rudimentary, consisting of a very thin median rod, of which there is sometimes scarcely any trace in the adult form. Both the anterior and posterior sensory hairs are present, but they are not so distinctly enclosed in chitinous extensions of the median rod as they are in other species. The most interesting feature of this species is the presence of a pair of large, lens-like tubercles lying behind the true eyes, close to the hinder margin of the cephalothorax. Hair vestiture moderately dense, short, and bearing exceedingly minute secondary hairs.

The active nymphal form was observed in great numbers, running on the rocks during bright weather in May and June. When fully grown, it is about 950μ in length by 614μ in breadth. The shape is subquadrate, and the hairs are much more sparse than in the adult. The legs also are much shorter, feeble, and of more uniform length. The prodorsal tubercle, which is so conspicuous in the adult, is present, but is less developed.

The legless, quiescent form of the nymph occurs between dry flakes in the Orange Lichen zone. It is very similar in shape and size to the active

nymph, except for the double indentations of the front margin, characteristic of the encysted stage. The structure of the adult can be seen through the enclosing skin.

Originally recorded from Sicily (Palermo) by Berlese. Figures of the crista and thoracic tubercle are given in the present paper.

Rhyncholophus Passerinii (Berl.). (Pl. XXIII, fig. 29 a, b.)

1904 *Erythraeus Passerinii* Berlese, **8**, p. 16.

Found between rather dry flakes in the Pelvetia zone on the rocky shore at Malahide, June and July, 1916. Also at Ardfry, in the Pelvetia zone, under stones resting on mud, June, 1916.

A sluggish species, of a dark purplish-red colour, and dense, silvery hairs. It may be easily recognized by the very elongate shape (fig. 29 a), and the strongly plumose hairs. The legs and palps are short, and rather weakly developed. The size varies in the Irish specimens from about 1160μ to 1300μ; breadth 560μ. The median rod of the crista is rather long, and a chitinous part projects beyond the hinder sensory area (fig. 29 b). In the original figure (**8**, Pl. I, fig. 17) of this species there are only three hairs on the frontal sensory area; possibly the drawing was made from an immature specimen; in the fully developed form about ten long "feathered" hairs are present. Recorded from the Italian coast by Berlese, and found under rocks sometimes covered by the tide.

Rhyncholophus rubripes Berl. et Trouess. (Pl. XXIII, fig. 30.)

1889 *R. mineatus* var. *rubripes* Berlese et Trouessart **20**. 1889 Moniez **38**, p. 196. 1910 *Ritteria hirsuta* George, "The Nat.," p. 182. 1915 Halbert **25**, p. 115. 1918 Hull **26**, p. 26.

An abundant and conspicuous species on the intertidal shore at Malahide and Ardfry, occurring in fissures and running on the rocks at low tides. Apparently it was noted only in the Orange Lichen and Pelvetia zones, but there is little doubt that it occurs also in the lower zones. A short description of this species was given in (**25**), and the crista is figured in the present paper (fig. 30).

Rhyncholophus tardus Halbt. (Pl. XXIII, fig. 31.)

1915 Halbert **25**, p. 116.

Found under stones on the seashore near Mulranny, Co. Mayo, September.

A species of an orange-yellow colour and long oval shape (length, 1638μ; breadth, 844μ). Body with a sparse covering of rod-like hairs, which are

minutely spiculate. Crista (fig. 31) long and slender, the anterior extremity is distinctly pointed, and there is only one bristle in front of the long sensory hairs. Eyes small, and set close to the side margins of the cephalothorax. Legs slender, rather feebly developed, the first pair much longer than the others.

Family **TROMBIDIIDAE**.

Microtrombidium pusillum (Herm.) var. **major** nov. (Pl. XXIII, fig. 32 a, c.)

Length, 1400μ to 1700μ; breadth, about 900μ. Colour red; shape ovate; in the ovigerous female it is more elongate; shoulders not prominent. Epidermis reticulate and densely covered with plumose spines (fig. 32a); these are slightly bent, constricted at the base, and have bristle-like extremities; their length varies from 35μ to 50μ. Cephalothorax very small; the crista (fig. 32 b) is strong; anterior extremity with a striated expansion at each side; sensory area rather small, with a thick chitinous border, surrounded by a ring of pulmose spines. A chitinous process of the median rod projects into the proximal sensory area. Eyes small, lying close to the crista.

The palps are of normal length, first two segments equalling those of first pair of legs in breadth (55μ); last segment with a short appendage and an inner comb of at least five strong spines (fig. 32 c); distal extremity slender. Legs short and stout; the first pair measure about 760μ in length. The last segment has an almost straight dorsal and a rather convex ventral outline (length, 180μ; breadth, 85μ).

This variety appears to differ from the typical form in the larger size, longer body hairs, the form of the terminal segment of the first pair of legs, and in the presence of a distinct inner comb of spines on the fourth palp segment. In his synopsis of the type, Berlese remarks "spinis pectinis in latere segmenti quarti internis nullis," though in his remarks on the species he says there is a comb of very minute (pochissimi) spines present.

Habitat.—A few specimens occurred under stones in the Pelvetia zone, just below high-water mark, at Ardfry, Co. Galway, June, 1916.

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INDEX TO GENERA AND SUB-GENERA.

DESCRIPTION OF PLATES.

PLATE XXI.

Fig.

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2. *Gamasellus inermis* sp. nov. *a*, Female, under side. *b*, Pore at end of dorsal shield. *c*, Sternum of male. *d*, Chelicerae of male.
3. *Hydrogamasus littoralis* (G. et R. Can.). Protonymph.
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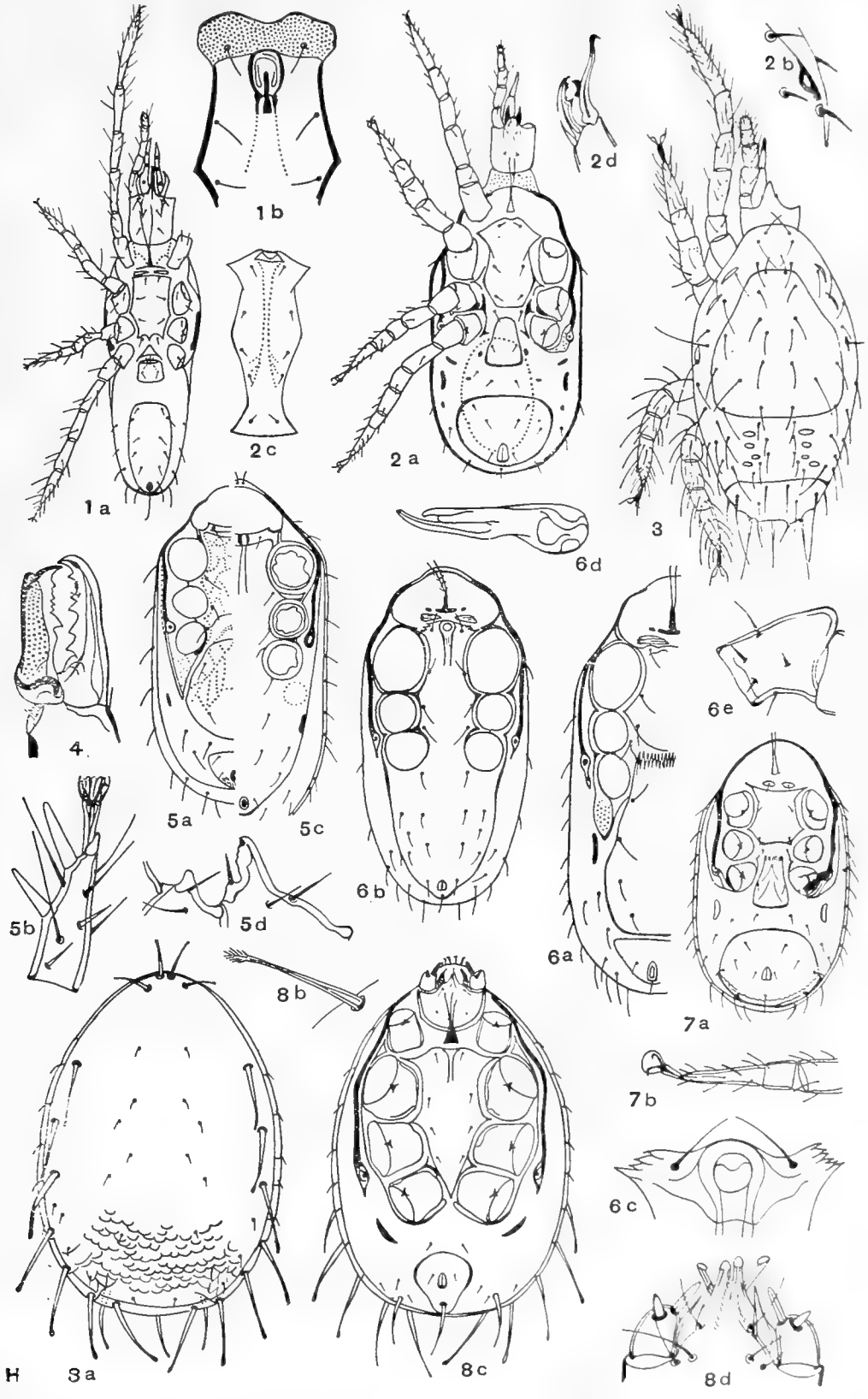
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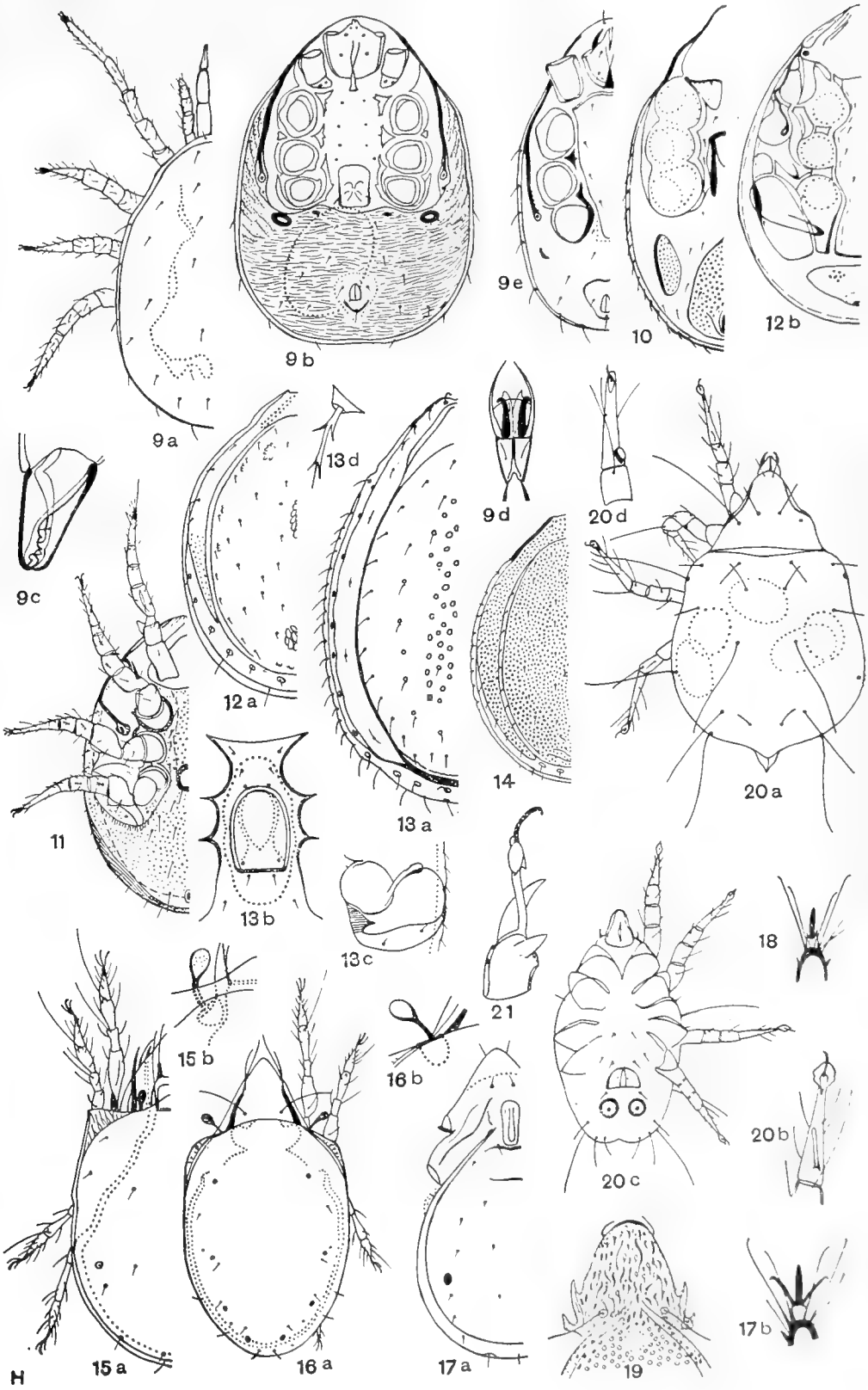
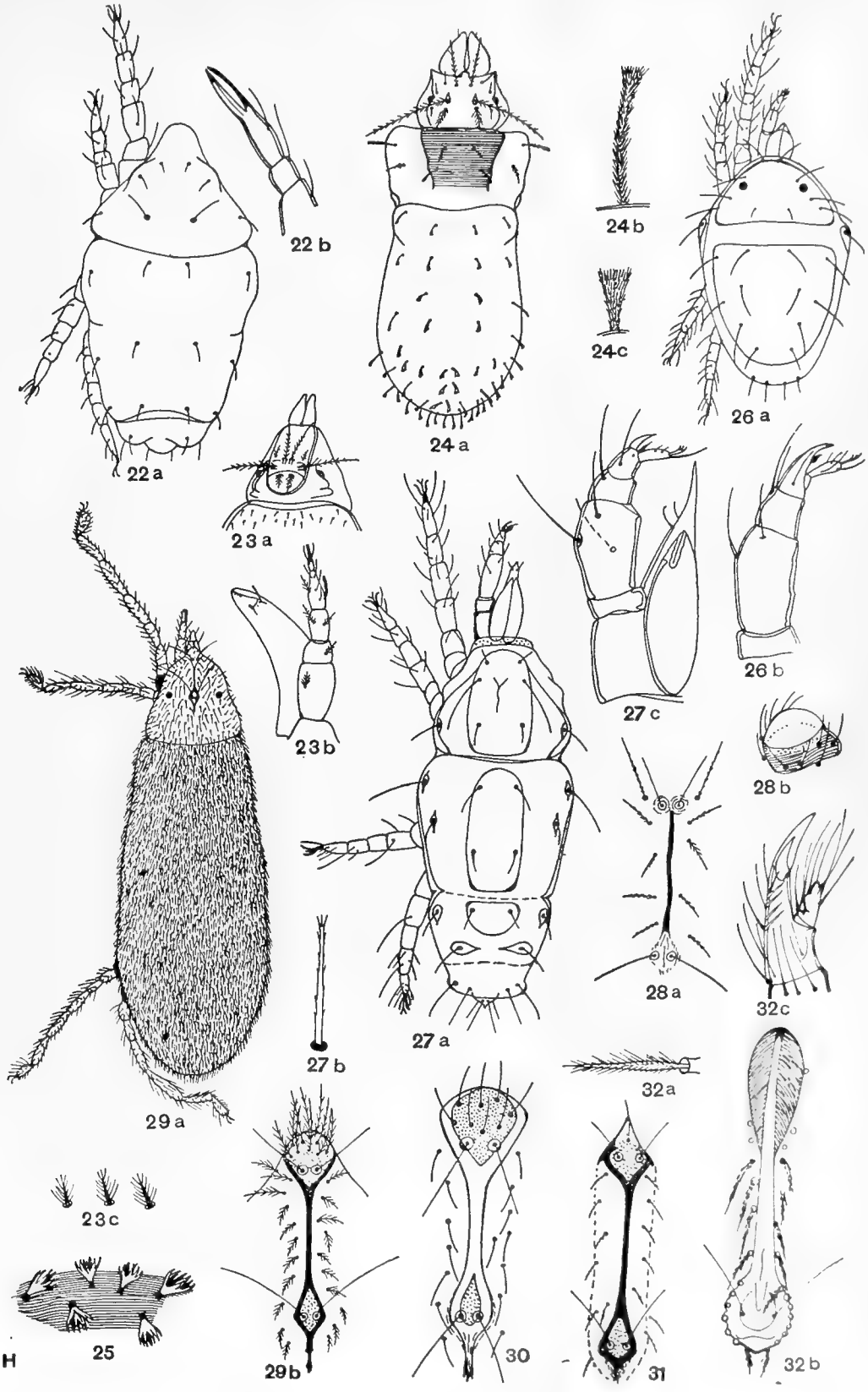


HALBERT—THE ACARINA OF THE SEASHORE.



HALBERT—THE ACARINA OF THE SEASHORE.

VIII.

AN EXPERIMENTAL STUDY OF THE FORAMINIFERAL SPECIES *VERNEUILINA POLYSTROPHA* (REUSS), AND SOME OTHERS, BEING A CONTRIBUTION TO A DISCUSSION "ON THE ORIGIN, EVOLUTION, AND TRANSMISSION OF BIOLOGICAL CHARACTERS."*

By E. HERON-ALLEN, F.R.S.,

AND

A. EARLAND, F.R.M.S.

Plates XVI—XVIII.

Read April 12. Published December 29, 1920.

It would be difficult to conceive within the whole vast range of natural knowledge the existence of a subject lending itself more readily to dogmatic expression and subtle phrase than that of "The Origin, Evolution, and Transmission of Biological Characters"; but though it is always easy to dogmatize, it is generally very difficult to pin an individual protagonist down to a definite pronouncement. To avoid this reproach—to provide at the outset a text or postulate wherein our general view of the question is concisely expressed—we opened our contribution to the discussion which took place under this "title" at the Bournemouth meeting of the British Association with the following axiomatic statement:—

"Variation from type in any group of organisms is either sporadic or epidemic. If it is the latter, the variation becomes specific. Going a step further, variation from species is likewise sporadic or epidemic; if it is the latter, the variation becomes generic."

And so a circle, not wholly vicious, would seem to be closed, but it will presently be seen that in our opinion it is not a circle, but a triangle—a triangle which takes its place (not always a very firmly established one) among a series whose inter-relations admit of wide-reaching, and often apparently anomalous, results.

We shall naturally confine our arguments to the group with which we are particularly concerned—the Foraminifera; and we open the subject by

* Held at the joint meeting of Sections D (Zoology) and K (Botany), at the meeting of the British Association at Bournemouth, 12th September, 1919.

remarking that for nearly seventy years the authorities have agreed on one point at least, viz., the difficulties attaching to any attempt to define specific or even generic boundary lines.

Nearly every student of that branch of the subject with which we are especially occupied, the bionomics, no less than the classification, of the Foraminifera, has contributed his pronouncement, which has almost invariably taken the form of a warning. As long ago as 1848 Williamson in his paper upon the Lagenae observed that "extreme forms which appear to be very distinct from one another may be connected together by specimens of an intermediate aspect to an extent only to be believed by those who examine a large series of specimens side by side."[1] In 1864 H. B. Brady pointed out that "in the Protozoa a much larger range of variation must be allowed, within specific limits, than it is usual to grant in more highly organized beings"[2]—an observation which may be read usefully side by side with E. A. Minchin's statement: "It is certain that, with increasing knowledge, many species of Protozoa now regarded as distinct will prove to be developmental stages of others, as has happened so frequently in the case of the Metazoa"[3]—a remark to which we shall refer again when we come to discuss the question of multiformity. But Minchin himself became his own *advocatus diaboli* when, in the same work, he stated that a specific distinction between two things which shade off into one another by infinite gradations is not by those gradations rendered invalid any more than the gradual transition from spring to summer does away with the distinction between the seasons.[4]

The case has been admirably summed up by J. J. Lister as follows:—"The question appears to be, not whether all intermediate forms do or do not exist between dissimilar forms, but whether the whole body of forms, as they occur in nature, tend to group themselves or are aggregated about certain centres. . . . To refuse to recognize the existence of these centres because transitional forms exist between them is to ignore an essential fact. In a very large number of cases, at any rate, such centres do exist among the Foraminifera as among other organized beings, and the characters of the *middle* individuals of them are those of the *species*."[5]

[1] W. C. Williamson: "On the Recent British Species of the Genus Lagena." Ann. Mag. Nat. Hist., Ser. 2, 1848, vol. i. p. 10.

[2] H. B. Brady: "On the Rhizopodal Fauna of the Shetlands." Trans. Linn. Soc., vol. xxiv, 1864, p. 464.

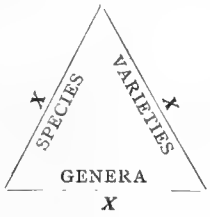
[3] E. A. Minchin: "Introduction to the Study of the Protozoa." London, 1912, p. 164.

[4] *Loc. cit.*, p. 97.

[5] J. J. Lister: "The Foraminifera," in E. Ray Lankester's "Treatise of Zoology," Pt. 1, Fasc. 2. London, 1903, p. 134.

In studying the evolution of species we must, as Frederick Chapman has pointed out, make an arrangement taking the form of a net, in which the species are represented by the knots which unite the threads, the threads standing for the series of intermediate forms connecting the species.[6] Such a plan was adopted in our Clare Island Monograph,[7] in an attempt to group the salient species and intermediate forms of the genus Discorbina.

Returning now to our triangle theory, we postulate that every group of organisms may be graphically represented by a series of triangles, the three sides of which represent respectively Varieties, Species, Genera;



and these triangles may find themselves juxtaposed in any way. The juxtaposed faces of the triangle would be connected by *xxx*, representing "sports," or intermediate specimens, which might eventually take the form of epidemic varieties linking one species, genus, or variety with another species, genus, or variety; and such intermediate specimens "*x*," would vary both indefinitely and infinitely.

Let us give another homely illustration of what appears to us to take place in the evolution of genera and species. At all stages it would appear that evolution may be illustrated by a hollow sphere (or pyramid, if we would pursue the triangle theory), the sides of which are formed of a network. Within this hollow figure we put a freely moving ball, approximately the same size as the meshes of the network. The ball represents the species; the network the accepted limits of variation within specific range. If the moving ball sticks in the network, it becomes an established "variety"; but if, under some biological or local impulse or stimulus, the ball forces its way through the meshes, it will not return, but will have evolved into a new "species" or "genus," and will thenceforth move freely within its own new cage (or triangle or pyramid). It will, in fact, have established its own triangle, and settled into its place juxtaposed to its nearest ally, which is not necessarily the parent form from which it derived its origin.

[6] F. Chapman: "The Foraminifera." London, 1902, p. 55.

[7] E. Heron-Allen and A. Earland: "The Foraminifera of the Clare Island District." Clare Island Survey, Pt. 64. Proc. R. Irish Acad., vol. xxxi. Dublin, 1913, p. 64 (Table).

Quite apart from our specific triangles and the nebulous No Man's Land occupied by *xxx* (the intermediate specimens) are those rare monstrosities in which the organism appears to pass at a bound from its immediate congeners into a far distant group. These monstrosities constitute the teratology of the Foraminifera, and up to the present have received little attention. For the purposes of the present paper they may be almost disregarded, but a closer study of such monstrosities may, perhaps, in the future afford the solution to many problems.

It is the object and purpose of this paper to attempt to throw some light upon the origin of biological characters and variations in the Foraminifera—in a phrase, to explain, or at any rate to suggest, how these new biological characters have their origin, are evolved, and transmitted; and we propose to illustrate this attempt by a description of the results obtained by the culture of two species of Foraminifera, both of common or almost world-wide occurence, and phylogenetically (according to existing systems of classification) almost as widely separated from one another as is possible, viz., *Massilina secans* (d'Orbigny) and *Verneuilina polystropha* (Reuss).

Before entering upon the description of our experiments it is necessary to call attention as shortly as possible to the modifications or variations of biological characters which have already been recognized in the Foraminifera, and to some other conditions to which we take this opportunity of calling attention for the first time.

The three forms of variation in the Foraminifera which have already been recognized (apart from isomorphism) are—

1. Variation in the size of the primordial chamber, including its influence on the aftergrowth of the test.

2. Variation in the plan or arrangement of chambers in different stages of the life-history of the Foraminifer.

3. Variation of external form, or simple "variation."

In addition to these, we propose to offer a few remarks on certain forms of variation and habit which have attracted little attention hitherto:—

4. The occurrence of gigantism and nanism.

5. Chitinous variation.

6. Variation due to sessile habitat of a normally free form, or *vice versa*.

7. "Encryptment": excavating or burrowing Foraminifera.

(1) The leading variation, concerning which a great deal has been written, is the problem of the co-existence in a species of individuals differing essentially in the size of their primordial chambers, which, under the now

generally accepted name of dimorphism, has deeply interested students of the bionomics of the Foraminifera ever since it was established by Munier-Chalmas in 1880 in the Nummulites.[8] Since that date the phenomenon has been established in a great many Foraminifera. Few authors have devoted more attention or contributed more to our knowledge of this phenomenon than J. J. Lister.[9] The subject is too involved to claim more than a passing reference in this place, especially as we are still in ignorance as to its influence or connexion, if any, with the problems under discussion.

(ii) The second form of variation, viz., the adoption by a Foraminifer, at consecutive stages of its existence, of different plans of growth, has been recognized ever since the study of the Foraminifera had its inception, and was originally known as dimorphism and trimorphism. As early as 1826 a subgenus exhibiting this phenomenon was named Dimorphina by d'Orbigny.[10] But since Munier-Chalmas' discovery of the dimorphism of the primordial chamber the older sense of the word has been generally abandoned, and the term "dimorphism" has been restricted to his definition. Various substituted terms have been suggested for the earlier discovery. Chapman in 1898 suggested bigenerism,[11] which was not happy, in view of the fact that such variations sometimes include more than two generic plans of growth. Moreover, a genus presenting this feature had been named Bigenerina in 1826 by d'Orbigny.[12] Rhumbler in 1895 suggested using the adjectives "bi-formed" or "tri-formed" to describe this kind of variation;[13] but Lister may be said to have established a more convenient term in the word "multiformity,"[14] and this term we have adopted.

This is neither the time nor the place to deal with the lengthy arguments as to whether multiform shells are progressive or retrogressive in their plans of growth. Probably in most cases the change of plan during the growth of the shell marks a progression or evolution to a higher and more complex system, and in such cases the complete shell may exhibit its full ancestry in

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[8] E. C. P. A. Munier-Chalmas: "Sur le Dimorphisme des Nummulites." Bull. Soc. Géol. France, Ser. 3, vol. viii, p. 300.

[9] See especially, J. J. Lister, "Contributions to the Life History of the Foraminifera," Phil. Trans. Roy. Soc., vol. clxxxvi (1898), B, pp. 401, *et seq.*, and *loc. cit.* (note 5), pp. 59, *et passim.*

[10] A. d'Orbigny: "Tableau Méthodique de la Classe des Céphalopodes." Ann. Sci. Nat., vol. vii, 1826, p. 264.

[11] F. Chapman: "Foraminifera of the Gault of Folkestone." J. R. Micr. Soc., 1898, p. 14 (foot-note).

[12] *Loc. cit.* (note 10), p. 261.

[13] L. Rhumbler: "Entwurf eines natürlichen Systems der Thalamophoren." Nachr. d. k. Ges. d. Wiss. zu Göttingen, 1895. Math. phys. Kl., Pt. 1, p. 63.

[14] *Loc. cit.* (note 5), p. 58.

the completed plan. Such progressive multiformity is admirably shown in the genera Peneroplis, Orbiculina, Orbitolites in the family Peneroplidinae, and in their perforate isomorphs Operculina, Heterostegina, Cycloclypeus in the family Nummulitinae.

Retrograde multiformity, assuming the transition from a complex to a simple plan of growth, is well represented in many genera of the family Textulariidae—for example, Spiroplecta, Clavulina, and Gaudryina; but perhaps nowhere better than in the genus Orbiculina, which, in addition to the multiformity alluded to in the last paragraph, exhibits a form of variation which has been briefly alluded to by Carpenter[15] and Lister,[16] and which is probably unique in its kind. The generic distinction between Peneroplis and Orbiculina lies in the subdivision of the chambers in the latter genus into chamberlets by the growth of internal septa. Apart from this distinction, there is little difference observable between small individuals of Orbiculina and specimens of Peneroplis of the *arietinus* group. Carpenter first noted that the septa dividing the chambers into chamberlets are sometimes wanting, "not merely in fully developed peneropliform varieties, but even in good-sized adunciform specimens," which, as he remarks, "is a fact of not a little significance." He proceeds to state his deductions that "in such cases no absolute line of demarcation can be laid down between Peneroplis and Orbiculina; for although there may be practically little or no difficulty in referring any given specimen to one or the other type by the aggregate of the characters it presents, yet no one of these characters taken by itself is sufficiently constant to serve as the basis for a precise definition."

With this remark we entirely agree. No rhizopodist familiar with the appearance of both genera would have any hesitation in referring these abnormal forms to their correct generic position in Orbiculina. And yet, structurally, they are not Orbiculina, but Peneroplis; and in them the Chinese wall separating the two genera, normally quite different in outward appearance and internal structure, is broken down.

Lister adds very little to our knowledge of this particularly interesting form of variation. He states that in some "stunted forms" of Orbiculina, "though by no means in all," the "subdivision into chamberlets may be incomplete or wholly absent. Sometimes the subdivisions die out in the terminal chambers after becoming established in their predecessors; in others it is absent throughout the test. I am inclined to regard these latter forms as examples of Orbiculina which have lost their secondary septa by

[15] W. B. Carpenter, W. K. Parker, and T. Rupert Jones: "Introduction to the Study of the Foraminifera" (Ray Society). London, 1862, p. 98.

[16] *Loc. cit.*, note 5, p. 190.

degeneration, rather than as representatives of Peneroplis, because of the existence of the intermediate forms just alluded to, in which the subdivision dies out in the terminal chambers, and also because they agree so closely in external features with small examples of typical Orbiculina that they cannot be distinguished from them by the external characters of the tests."

Lister compares these specimens with Schlumberger's figure of *Archiacina munieri*, and suggests the identity of Schlumberger's form.[17] This seems highly probable, and it is not the only instance in which Schlumberger has obscured knowledge by the erection of fictitious barriers. The difficulties attached to an explanation of the abnormal variations are increased, and not diminished, by the removal of the specimens to another sub-genus.

Our own experience of this interesting form of variation differs from Lister's, inasmuch as we have not hitherto observed any specimens such as he describes, in which an individual, having started growth with an "orbiculine" shell, subdivided into chamberlets, subsequently degenerates into the peneropline form, with individual chambers. All the specimens we have examined (and they are very many) have proved to be constant in one or other form *ab initio*, and a series of mounts of baby shells in balsam confirms this view. Subdivision into chamberlets either occurs from the very beginning (fig. 1), following the primordial chambers, or is entirely wanting. Moreover, although no peneropline specimen which we have seen attains any large size as compared with the comparatively huge dimensions sometimes attained by Orbiculina, the specimens can hardly be described as "stunted," for they differ little as regards external form and condition from typical Orbiculina of the same size, abundant in the same gatherings.

These peneropline variations are, however, few in number as compared with the typical shell. A noticeable feature, when the tests are examined in balsam, is the marked thickening of the septal face of the shell (fig. 2), so that the concentric septa become enormously thick as compared with typical Orbiculina. Thus the strength and rigidity lost by the suppression of the secondary septa are to a great extent recovered.

We have already referred to Orbiculina as presenting a remarkable resemblance to our genus Cycloloculina.[18] The resemblance is entirely superficial so far as the typical Orbiculina is concerned; but in these degenerate varieties the undivided chambers raise the resemblance to a point approaching true isomorphism.

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[17] C. Schlumberger: "Notes sur quelques Foraminifères . . . . du Golfe de Gascogne." Feuille des Jeunes Naturalistes, 1883, No. 153, p. 22, Pl. iii, figs. 2, 2*a*.

[18] E. Heron-Allen and A. Earland: "On Cycloloculina: a new Generic Type of the Foraminifera" J. R. Micr. Soc., 1908, p. 536.

But it must be confessed that we have no certain proof that a complex plan of growth implies a higher scale of organization than a simple plan, and the fact that some Miliolidae exhibit multiformity in some specimens and not in others shows that it is impossible to disregard true dimorphism in the consideration of multiformity. To mention one classical example only, we should note Schlumberger's discovery that *Biloculina depressa* d'Orb. is, in the megalospheric form, biloculine throughout, while in the microspheric form it passes through a quinqueloculine stage, followed by a triloculine, before commencing its normal biloculine arrangement, and thus is, at different stages in the life-history of a single specimen, referable to three different genera. Again, in *Articulina conico-articulata* (Batsch) the megalospheric form is adelosine, and the microspheric form milioline in its earlier stages, before taking on the rectilinear form of growth.[19] *Orbitolites tenuissima* Carpenter in its earliest stages is identical with Opthalmidium, and at a later stage it proceeds on a vertebraline plan of growth, before adding the concentric orbitoline chambers.[20] Remarkable specimens, showing this multiformity, are among Carpenter's original type-specimens in the Exeter Museum.

Mr. Sidebottom has recently brought to our notice an interesting example of multiformity exhibited in a series of specimens from a dredging made off Darvel Bay (North Borneo, 315 fms.). *Nodosaria radicula* (Linné) occurs in various forms, typically straight and nodosarine in the variety figured and described by Neugeboren as *Nodosaria boyrichi*, and curved and dentaline (= *Dentalina brevis* d'Orbigny). Both of these forms are megalospheric, but microspheric specimens also occur. In these the primordial is followed by a short series of chambers, arranged on a polymorphine plan, and the shell then completes its growth into a series of dentaline chambers. These microspheric specimens are taxonomically inseparable from d'Orbigny's type, *Dimorphina nodosaria*, which is usually regarded as a degenerate Polymorphina, and, taken without consideration of their surroundings, would be placed by systematists at some distance from *Nodosaria radicula* (Linné), whereas an association with a series of specimens from the same dredging proves that they are merely biological mutations.[21]

These instances suffice to prove the biological futility of all our systems of taxonomy based on the external shell, and compel us to admit that at

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[19] We illustrated and described this multiformity fully in our Kerimba Monograph (see note 24*a*), p. 586, Pl. xlv, figs. 26-33.

[20] Described and illustrated by Lister (see note 5), p. 108, *et seq.*, and figs. 39, 40.

[21] These specimens are figured and described in H. Sidebottom: "Report on the Recent Foraminifera Dredged off the East Coast of Australia, etc." J. R. Micr. Soc., 1918, p. 132, Pl. iv, figs. 1-5, and p. 146, Pl. v, figs. 18-22.

present we know practically nothing on which a truly scientific system can be based. Indeed, as J. J. Lister has justly observed, "until these early stages have received fuller attention, and we have arrived at a conclusion as to the relation of the early to the later stages of the multiform tests, efforts at forming a 'natural classification' appear to be premature."[22]

(iii) The third form of variation, already recognized, is variation of external form, the intermediate or "passage" forms, "*xxx*," to which we have already referred. The extreme aspect of this modification is to be found in the monstrosities to which we have also referred, and shall refer again later. Some of these variations are inexplicable, being combinations of widely differentiated genera, such as the specimen half Globigerina and half Nodosaria, figured by Heron-Allen in his paper on Bionomics in 1915.[23]

Since that time we have come across other equally incomprehensible combinations of widely separated (so-called) genera, notably a Textularian, which, after completing its biserial shell, became in the later chambers a perfect *Globigerina dutertrei*, d'Orbigny, found in the "Terra Nova" dredgings (Stn. 96, New Zealand Benthos., Stn. 4) (fig. 3). A Miliolina terminating in a series of chambers set at an angle to the test which were cornuspirine with a tendency to Opthalmidium, gives us a further instance (fig. 4), in this case the later growth taking the form of more nearly related genera.

It is a question whether the fistulose Polymorphinae should be regarded as "monsters." We are inclined to the view that all free specimens of fistulose Polymorphinae have originally lived in the sessile condition, and that the fistulose out-growths represent no more than a protective covering secreted by the animal to protect the streaming protoplasm emerging from the orifice. In other words, that the *fistulæ* are homologous with the sandy tubes radiating from Valvulina and other forms which are normally sessile. Alcock has suggested[24] that this fistulose condition results from senility and weakness, the protoplasmic body of the organism being no longer able to control its own development and the fashion of its calcareous investment. But it seems to us that if Alcock's theory were correct, fistulosity would be found at least in all species of Polymorphina, and probably in other genera as well, whereas this form of variation is practically confined to a few species only.

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[22] *Loc. cit.* (note 5), p. 140.

[23] E. Heron-Allen: "Contributions to the Study of the Bionomics and Reproductive Processes of the Foraminifera." Phil. Trans. Roy. Soc., Ser. B, vol. ccvi, 1915, p. 251, Pl. xvi, fig. 34.

[24] T. Alcock: "Proc. Lit. Phil. Soc. Manchester," 3rd Ser., vol. iii, 1866-7, and vol. xxii, 1883, p. 68.

iv) There is a fourth form of variation which has been familiar to us for a long time, but which does not appear to have been definitely recognized, although scanty references to it may be found in the literature of the group. This is the occurrence of both giant and pygmy forms of species having normally a definite range of size, and without environmental conditions, such as superabundance or deficiency of food supply, etc., to explain the variation. It may be granted that pygmy forms are likely to escape observation, or, if seen, to be regarded as immature, while giant forms are likely to attract observation. *Cornuspira striolata* Brady, in the deep cold water of the Faroe Channel at a temperature of −1·04° C., attains a size of over an inch in diameter, whilst in other gatherings from various parts of the world it does not reach a quarter of that size.[55] *Technitella legumen* Norman occurs in some numbers in one of Earland's dredgings off St. Kilda in 1,448 metres. The majority of the specimens are normal, about $\frac{1}{10}$ inch long, but fragments greatly exceeding that size also occur, which show that the perfect shells must have been quite 1 inch in length. There is little doubt that the large coarse variety *Haplophragmium crassimargo* Norman, is a giant form of the normal *H. canariense* (d'Orb.), but in this case the giant variety either replaces the type, or, when both are present, is as common as the normal.[56]

Many other instances of gigantism could be quoted, but they are as a rule based on single records, and the phenomenon will require a good deal of careful study before its exact meaning will be discovered.

The evidence in support of nanism, of the existence of pygmy forms, is very slight, apart from one particular example, with which we shall deal at some length. We have observed such pygmies in *Cristellaria crepidula* (F. and M.), and a few other species, but they are difficult to separate from young and immature specimens. The exceptional instance is the pygmy form of *Verneuilina polystropha* (Reuss), figured and recorded by us from the West of Ireland in 1913,[57] and subsequently identified from several widely separated localities. We were at first inclined to regard this as the microspheric form of the species, but our subsequent researches have proved it to be an adult pygmy form, showing all the modifications of the normal shell of the species. To these we shall refer in greater detail when dealing with the species *Verneuilina polystropha*.

The biological significance of this phenomenon of gigantism and nanism is, in the present state of our knowledge of cytological bionomics, extremely

[55] Described and illustrated by us in J. R. Micr. Soc., 1913, pp. 274–5, fig. 36.

[56] Described and illustrated by us in "Knowledge," vol. xxxiii, No. 508, Nov., 1910, pp. 422-425, figs. 2, 3, 4.

[57] *Loc. cit.* (note 7), pp. 55-56.

obscure, but the conviction grows almost daily stronger that the biological problems which confront us in the study of the higher and highest organisms must eventually find their solution in the study of the unicellular organism. As Sir James Paget observed in his "Lectures on Surgical Pathology," so long ago as 1849, "if we are ever to escape from the obscurities and uncertainties of our art, it must be through the study of those highest laws of our science which are expressed in the simplest terms in the lives of the lowest orders of creation." A remarkable lead in this direction is indicated in the late E. A. Minchin's Presidential Address to Section D (Zoology) at the British Association in 1915, "On the Evolution of the Cell," in which "swan-song" he recorded the bases of the remarkable line of inquiry which was cut short by his untimely death. It is not, we think, in any way preposterous to suggest that as science arrives—as arrive it must—at a clearer comprehension of the nucleus of the primordial cell, and of its constituent chromidia, the origin of such phenomena as that which we are discussing will be revealed.[28]

(v) Yet another form of variation to which insufficient attention has been hitherto devoted is the occurrence, in numerous species of widely separated genera, of tests which are either wholly or in part chitinous. It has been generally accepted that the replacement of the normal calcareous test by a chitinous investment is evidence of starved conditions of existence. But, however true this may be in some cases, as where foraminifera have extended into very brackish water, we are not prepared to accept this as a general explanation of the existence of chitinous variation. All the evidence in our possession tends to show that in most, if not in all foraminifera, a chitinous membrane, perforate or imperforate, according to the type, exists between the protoplasmic body which it encloses and the external shell.[29] And this chitinous wall is subject to hypertrophy, perhaps atrophy, and all the other variations which normally occur. Tests of Foraminifera, perfect in all respects, but formed entirely of chitin, are not uncommon objects, and one occasionally finds damaged individuals who have repaired their lesions

[28] It may seem a startling and breathless generalization, but we would suggest, with all due caution, that in the nuclear matter may be discovered the *causa causans* of such phenomena, even to the rudimentary occurrence of the pituitary body, upon the conditions of which the phenomena of gigantism and nanism would appear to depend.

[29] Mr. F. Chapman writes to us from Melbourne, in answer to our inquiry, that he had identified "an undoubted chitinous lining" to the shells of *Spirillina groomii*, Chapman, recorded by him from the Upper Cambrian of Malvern (Q. J. Geol. Soc., London, vol. lvi, p. 259, Pl. xv, figs. 1, 10, and 11), and subsequently identified by us, as the oldest existing specific form of life from Clare Island (*loc. cit.*, note 7, p. 107, Pl. ix, figs. 2, 3).

with chitin, or have added a chitinous chamberlet to their otherwise normal shells. Among the monstrosities found in our Selsey Tanks was a perfectly twinned specimen of *Massilina secans* (d'Orb.), which had added at the junction of the shells, to serve as a general aperture, a wild growing tube, and the whole of this monster was purely chitinous (fig. 5).

In 1884 von Daday recorded a form, a chitinous polythalamian Rhizopod from the salt-pools of Deva in Transylvania, for which he established a new genus and species *Entzia tetrastomella*[30], which appears to be closely related to if not identical with the accepted genus Trochammina—a genus which, as we have recorded elsewhere, is peculiarly apt to form its test for the most part of chitin, supported by very few and separated quartz grains.[31] This chitinous depauperation in our specimens has usually been due to a deficient salinity, whereas in von Daday's organism the same variation appears to arise from a contrary condition of things—viz., excessive salinity. The most interesting feature in von Daday's discovery, and one which is very germane to the questions at issue in this paper, is the origination and evolution *de novo* in inland waters of a polythalamian form, hitherto invariably connected with a marine habitat.

We desire to speak with great reserve and caution upon this subject, in view of the very limited amount of information as yet obtainable respecting the nature and origin of chitin. We have yet to learn how it is secreted by the foraminifer, and how it may be definitely identified, but we may put upon record the facts recorded above, and also that such chitinous specimens have been found under all conditions of normality, starvation, and satiety, at all temperatures, and at widely different depths. What is required is data upon which to form an opinion whether the secretion of chitin in abnormal quantity is or is merely a diversion of the normal function of the protoplasm—viz., the secretion of a shell either by the use of adventitious material, or by the separation of carbonate of lime from the sea-water, in which case this form of variation may prove to be the key to the problem of isomorphism; or (2) whether chitinous variation has a distinct biological or pathological meaning.

(vi) It may become a question—but it is one upon which we are not at the present moment prepared to enter—whether to the five modifications which we have now considered a sixth should not be added. This is the question of free and adherent forms of the same species. Many forms are found at

[30] E. von Daday: "Ueber eine Polythalamie der Kochsaltztümpel bei Deva in Siebenburgen," Zeitschr. f. Wiss. Zool., vol. xl, 1884, p. 465 *et seq.* (Transl. Ann. Mag. Nat. Hist., Ser. 5, vol. xiv, 1884, p. 349, *et seq.*)

[31] *Loc. cit.* (note 7), p. 52.

some period of their life-history, or in certain specialized localities, firmly adherent to sand grains, molluscan fragments, or other organisms, by means of a distinctive cement formed of quartz grains. The biological significance of this modification is still obscure. It reaches, perhaps, its highest development in *Valvulina fusca* Will., but it has been noted by many authors.[32] Williamson records Lagenae, found adherent to Fuci and Byssus by MacGillivray, and to *Antedon rosacea* from Plymouth by Jeffreys,[33] and among the "Runa" dredgings of Professor W. A. Herdman from the West of Scotland we found a remarkable series of *Textularia sagittula*, Defr., firmly adherent to algae by their apertures.[34]

Among the "Terra Nova" material at Antarctic Station 388, *Truncatulina refulgens* (Montf.) occurs abundantly in a sessile form on Bryozoa. This would be a normal habitat, but nearly all the specimens present an abnormal variation in the presence of radiating tubes of sandy material, either attached to the surface of the Bryozoa, or projecting freely from the organism.

An interesting illustration of the variation due to sessile habit can be found in *Polytrema miniaceum*, Pallas.[35] This organism appears to us to start life in one of two ways, and what may determine the plan it adopts is entirely obscure. (*a*) It usually starts life as an adherent primordial chamber surrounded by a typically rotalian series of chambers, plainly distinguishable when the organism is removed from its host.[36] This is immediately followed by an expanding encrusting base, and the organism then rises into arborescent pillars, composed of acervuline masses of irregularly shaped chambers; (*b*) but this rotaline base is in many cases invisible when the specimen is detached from its base. In these cases it would appear that the creature has started life as a free and independent organism, consisting of a central chamber surrounded on all sides by smaller ones on an irregular rotaline plan. This was first noted by Schlumberger.[37] This free organism then attaches itself to a base, and proceeds to grow on the familiar arborescent

[32] See F. Chapman: "On the appearance of some Foraminifera in the living condidition from the Challenger Collection." Proc. Roy. Soc. Edinburgh, vol. xxiii, 1901, pp. 391-395, Pls. i and ii.

[33] *Loc. cit.* (note 1), p. 11.

[34] E. Heron-Allen and A. Earland: "The Foraminifera of the West of Scotland." Trans. Linn. Soc. (London), Ser. 2. Zoology, vol. xi, 1916, p. 229. Chapman has recorded and figured similar specimens from the Ki Islands ("Challenger," Stn. 232). *Loc. cit.* (note 32), p. 392, Pl. i.

[35] See Lister. *Loc. cit.* (note 5), p. 123, *et seq.*, fig 51.

[36] M. Schultze: "Ueber Polytrema miniaceum." Wiegmann's Archiv für Naturges, Jahrg. 29, vol. i, 1863, p. 81, *et seq.*, Pl. viii. (Transl. Ann. Nat. Hist., Ser. 3, vol. xii, 1863, p. 409, *et seq.*, Pl. vii, fig. 6.)

[37] C. Schlumberger: "Note préliminaire sur les Foraminifères dragués, par S. A. le Prince Albert de Monaco." Mem. Soc. Zool., France, vol. v, 1892, p. 196, fig. 5.

plan, and quite recently, in preparing our monograph of the Foraminifera brought home by the "Terra Nova" Expedition of 1910, we have found in dredgings from New Zealand specimens of these free forms, some at the actual moment of developing their earliest "adherent" chambers, and a series progressing to the most fully developed arborescent forms.

Similar specimens from an unrecorded locality are to be found in the W. B. Carpenter collection in the Museum at Exeter. It should be pointed out that the number of specimens of this early and free form observed is out of all proportion to what might be expected if it were a normal method of development.

(vii.) It would be perhaps premature to establish a variation of habit upon what is at present in our experience a solitary instance; but it will not be out of place to refer to the remarkable specimens of *Cymbalopora* [illegible] Brady, recorded by us from the Kerimba Archipelago,[39] and so appositely discussed at length by Heron-Allen.[40] These organisms had "encrypted" themselves in pits in the surface of molluscan fragments, enlarging their crypts as they grew to maturity by a process which is at present unknown. The instance was unique in our experience, and has not, so far as we are aware, been recorded by any student of the Foraminifera.

It is, however, time to address ourselves to the description of our experiments and observations upon *Vermiculina polystropha* (Reuss). We were led into the inquiry, the results of which are now recorded, by two groups of circumstances, arising out of experiments carried out in our tanks at Selsey, the earlier results of which have been recorded by us elsewhere.

The first was an experimental culture of the robust and common Miliolid, *Massilina secans* (d'Orb.) in sea-water unintentionally rendered hypertonic by the continual addition of well-water of marked hardness (owing to the presence of lime), to make up for evaporation from the surface of the tank. The results of this experiment were first recorded in 1910.[40] Not only was a remarkable series of wild-growing monsters produced, but a large number of the specimens came to maturity showing all the distinctive features of three previously established "varieties," to wit, *Massilina denticulata*, Costa, *M. obliquestriata*, Halkyard, and *M. tenuistriata*, Earland.[41] It afforded an excellent object-lesson and warning as to the multiplication of specific

[39] E. Heron-Allen and A. Earland: "The Foraminifera of the Kerimba Archipelago." Trans. Zool. Soc. (London), vol. xx. 1915, p. 688.

[40] *Loc. cit.* (note 23), p. 258, Pl. xviii. figs. 55, 56.

[40] E. Heron-Allen and A. Earland: "The Recent and Fossil Foraminifera of the Shore Sands at Selsey Bill, Sussex." J. R. Micr. Soc., 1908-11 (1910), pp. 693-695.

[41] These induced variations and monstrosities, and the three resulting species, were figured in 1915 by Heron-Allen. *Loc. cit.* (note 23), p. 262, Pl. xviii. figs. 57, 58.

names which, as Parker and Jones observed so early as 1860, "keeps up a false notion of the value of external characters which are rarely essential, whilst no clue is thereby obtained to the morphological law of each real specific type."[42]

The second was the observation of the fact that certain arenaceous Foraminifera exhibit a tendency to select and incorporate heavy minerals and gems in their tests. Thus *Haplophragmium agglutinans*, d'Orb., builds magnetite grains into its test whenever that mineral occurs in its surroundings.[43] We have recorded the same affinity for magnetite in specimens of *Reophax difflugiformis*, Brady, from the West Coast of New Zealand,[44] and have recently found *Jaculella acuta*, Brady, from New Zealand ("Terra Nova" Station 96, 70 fms.), incorporating magnetite and other heavy minerals largely in the outer layer of its massive tests, while constructing the whole of the interior test of white quartz grains. *Verneuilina polystropha* (Reuss) betrays a similar tendency to select and incorporate in its test minerals of all kinds, and, regard being had to the much higher specific gravity of these minerals as compared with that of ordinary siliceous sand-grains, the habit becomes highly significant. The phenomenon was first forced upon our notice in the case of a number of specimens gathered from the Mixon Reef at Selsey in 1907, described by us in 1909,[45] and at greater length by Heron-Allen in 1915,[46] and the experiments described below were then set on foot.

The "history" of the species *Verneuilina polystropha* is in itself interesting as recording the stages in the evolution and diagnosis of a species, and we may introduce the subject with a brief summary of that history.

The species was first described by Reuss in 1846 as *Bulimina polystropha*,

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[42] T. Rupert Jones and W. K. Parker: "On the Rhizopodal Fauna of the Mediterranean." Q. J. Geol. Soc., vol. xvi, 1860, pp. 293–294. (See also T. R. Jones: "Remarks on the Foraminifera." Monthly Micr. Jour., 1876, p. 72.) The too little remembered observations of W. B. Carpenter upon systematists who described "specimens" instead of "species," require no excuse for quotation. "Everyone who makes a bad species is really doing a serious detriment to science; whilst everyone who proves the identity of species previously accounted distinct is contributing towards its simplification, and is therefore one of its truest benefactors." (Royal Inst., Gt. Britain, 1858, Mar. 12, Reprint, p. 6.) In this connexion we may refer to our recently published paper on *Thurammina papillata*, Brady. A Study in Variation. (J. R. Micr. Soc., 1918, pp. 530–557, Pls. xxvi–xxx.): in which we established the morphological identity of all the previously recorded "species" of Thurammina.

[43] Described and figured by us in "Knowledge." *Loc. cit.* (note 26), p. 421, fig. 1.

[44] *Loc. cit.* (note 23), p. 267, Pl. xviii, fig. 64.

[45] *Loc. cit.* (note 40), 1909, p. 327, and E. Heron-Allen. J. R. Micr. Soc., 1915, pp. 548–549.

[46] *Loc. cit.* (note 23), p. 267.

with the following diagnosis, in which the arenaceous constitution of the test is not referred to.[47]

"*Bulimina polystropha.* Distinguishes itself from all other species by the great number of its convolutions, and by its slender elongated-egg configuration. It is 1–1·5 mm. high, rounded off above, obtusely (bluntly) pointed; 9–10 obscure convolutions, each consisting of three moderately arched chambers separated by slender but distinct septa. The upper chambers, especially the last, extremely arched. On the inner edge of the last chamber is the aperture, as a small semicircular cutting-out.

"Rare in the Planer chalk of Weisskirchlitz."

In 1854 the species was described anew by Schultze as *Polymorphina silicea*.[48] It must be borne in mind that at this time the arenaceous Foraminifera had not received the attention, separation, and classification which resulted later from the work of Brady, Parker, and Jones. The diagnosis of Schultze was as follows:—

"*Polymorphina silicea* nov. spec. A botryoid (grape-cluster-like), sometimes slightly compressed shell, on which only the last-formed, rather strongly prominent chambers are distinctly visible; the small older ones are covered up. The shell is yellow in colour, marked by many quite irregular and non-perforating depressions, and is composed for the most part of silica. A single, large, round aperture is situated on the prominent part of the last chamber, through which the animal protrudes numerous fine pseudopodia. Greatest diameter of the shell, 0·23 mm.

"This remarkable species, of which I found one living and many dead specimens at Ancona, and which is distinguished from all hitherto known Foraminifera by its siliceous cuirass, I have left in the genus Polymorphina, on account of its precisely similar construction to the other species of the genus, although the different (anomalous) chemical constitution of the shell might properly justify the institution of a new one. I have not hitherto been able to establish (identify) the presence of silica in the shell in any other species of this genus."

Schultze came to the erroneous conclusion that the sand-grains forming the test were not gathered from its surroundings by the organism, but were secreted by the animal itself, in the same manner as the plates of Difflugia. He goes on:—

"That the silica (which is identified by its complete insolubility in

[47] A. E. Reuss: "Die Versteinerungen der Böhmischen Kreideformation." Stuttgart, 1845-6, Part II (1846), p. 109, Pl. xxiv, fig. 53.

[48] M. S. Schultze: "Ueber den Organismus der Polythalamien (Foraminiferen)." Leipzig, 1854, p. 61, Pl. vi, figs. 10, 11.

mineral acids) does not arise from a mixing into the shell of sand-grains cemented together appears to be probable from the smooth upper surface of the shell, and the histological facts revealed by fragments."

He records that his *P. silicea* is not the only Foraminifer "with a siliceous cuirass," as he has had under his observation a living arenaceous polythalamian (which he describes, but does not figure or name), and calls attention to the two d'Orbignyan species, *Spirolina* (*Haplophragmium*) *agglutinans* and *Bigenerina agglutinans*[49] (*B. nodosaria*, d'Orb.).

In 1858 Williamson described the form as *Bulimina scabra*,[50] calling attention to Schultze's species (*ante*), and noting the difference in the aperture as described. He properly doubts the accuracy of Schultze's figure in this respect, and regards the two as identical, which they are.

It was Carpenter, Parker, and Jones, in 1862, who recognized *B. arenacea* (*scabra*) Will. as an arenaceous Textularian,[51] transferred it to the genus Verneuilina of d'Orbigny, and suggested in the Appendix (p. 311) the name *Verneuilina polystropha*. The genus Verneuilina was created by d'Orbigny, and was subsequently diagnosed as follows by Parker and Jones in 1865[52] in describing this species :—

Textularia agglutinans, d'Orb., var. (*Verneuilina*) *polystropha*, Reuss., sp.

"When Textulariae have a triple row of alternating chambers, as is not unusual with them, they are termed Verneuilinae ; having commenced triserially, they may afterwards take on a biserial or uniserial arrangement of chambers, and are known as Gaudryina, Clavulina, &c. Some that have a triple series of chambers are so much twisted on the axis as to have a buliminoid aspect ; a slight approach to this condition is shown in *Verneuilina polystropha* (refs. as above). In Verneuilina the aperture ceases to be transverse, becoming drawn upwards, as it were, across the septal plane more and more in the later chambers, until it ceases to be even a notch, and becomes terminal and round, as it is in Bigenerinae.

"*V. polystropha* may be said to be a small, vesicular, arrested verneuiline *Textularia* ; sandy, twisted on its axis, and very red in colour. It is of wide distribution, living in all latitudes ; it is found fossil in the Tertiary and Cretaceous beds."

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[49] A. d'Orbigny : Foraminifères fossiles du Bassin Tertiaire de Vienne. Paris, 1846. p. 137, Pl. vii, figs. 10–12, and p. 238, Pl. xiv, figs. 8-10.

[50] W. C. Williamson : "Recent Foraminifera of Great Britain" (Ray Society), 1858, p. 65, figs. 136, 137. In the explanation of the plates it is called *B. arenacea*.

[51] *Loc. cit.*, note 15, p. 192.

[52] W. K. Parker and T. R. Jones : "North Atlantic and Arctic Foraminifera," Phil. Trans. Roy. Soc., 1865, p. 371, Pl. xv, fig. 26.

The species is recorded with more or less description in 1870 by Fischer;[53] in 1878 by Brady;[54] in 1884 by Brady in the "Challenger Report;"[55] and in 1893, with a good diagnosis, by Egger;[56] but the next (and last) important records are those of Goës, who in 1894[57] gives one of his condensed but always satisfactory diagnoses: "Arenaceous, bulimine, oval, or fusiform. Aperture either sutural, an oblique fissure; or extra-sutural, comma-shaped."

He figures a series of specimens of the normal form, but he also figures (figs. 262–3), under the name of *V. pygmaea* (? Egger) Brady, the pygmy form to which we have already referred in this paper as an example of nanism or dwarf variation.[58] Goës was incorrect in his identification of these specimens as *V. pygmaea*, Egger, which is a form of entirely different aspect and construction. In 1896 Goës appears to have recognized his mistake, for he figures the form again from the Pacific Ocean (995 fms.),[59] and names it *V. pusilla*, which varietal name for taxonomical reasons it is desirable to retain for the dwarf form. Goes regarded his *V. pusilla* as an immature form of *Gaudryina scabra* Brady, to which, however, it bears little resemblance. It may be noted that the 1894 figure represents a long, narrow form, and the 1896 figure a broader form.

It should be observed that the normal *V. polystropha* is a remarkably "constant" form, singularly free from the variations and monstrosities which occur under normal circumstances among other foraminifera. It may also be remarked that though the normal test is constructed of minute sand grains, closely and neatly cemented together by means of a deep-brown ferruginous cement, with their flattest sides turned outwards, individuals are far from uncommon which appear to be white or light in colour owing to the

[53] P. Fischer: "Foraminifères marins du Département de la Gironde," Actes Soc. Linn. Bordeaux, vol xvii, 1870, p. 393 (in the reprint, p. 65), No 32.

[54] H. B. Brady: "Reticularian . . . Rhizopoda of the North Polar Expedition of 1875–6," Ann. and Mag. Nat. Hist., Ser. 5, vol. i, 1878, p. 436, fig. 9, a, b, c.

[55] H. B. Brady: "Report on the Scientific Results of the Voyage of H.M.S. 'Challenger' (Zoology)," vol. ix, London, 1884, p. 386, Pl. xlvi, figs. 15–17.

[56] J. G. Egger: "Foraminiferen aus Meeresgrundproben gelothet . . . von S. M. Sch. 'Gazelle' Abh. d. K. bayer. Ak. Wiss. (Munich)." II Cl. vol. xviii, 1893. Pt. II, p. 280, Pl. vii, figs. 17, 18.

[57] A. Goes: "A Synopsis of the Arctic and Scandinavian Recent Foraminifera," K. Svensk. Vetensk. Ak. Handl. Stockholm, vol. xxv (1894), p. 32, Pl. vii, figs. 247–255.

[58] *Loc. cit.*: Goës gives as references for the synonymy of this dwarf form, J. G. Egger: "Die Foraminiferen der Miocän Schichten bei Ortenburg in Nieder Bayern," in Leonhard and Bronn's Jahrbuch, 1857, p. 284, Pl. xii, figs. 10, 11; Parker and Jones, 1865 (*ut supra*), and Brady, 1884 (*ut supra*), Pl. xlvii (misprinted "t. 4. 7."), figs.4–7.

[59] A. Goes: "Reports on the Dredging Operations . . . carried on by the U.S. Steamer 'Albatross,'" Pt. xx, Foraminifera, Bull. Mus. Comp. Zool. Harvard, Cambridge (U.S.A.), 1896, p. 39, Pl. v, figs. 6–8.

absence of ferruginous material in their cement (figs. 34, 35). Not infrequently a test is brown (ferruginous) for the greater part of its length, and then the later and latest chambers are white. In some gatherings also, and especially among young tests, the organism abandons its smooth habit, and presents a rough exterior surface, the sand grains not being so carefully arranged as to present a flat surface to the outside.

We have made a close study of the form based upon a great number of specimens, gathered from widely separated localities, and have also cultivated a great many living specimens in our tanks at Selsey, and we have succeeded in demonstrating that the species exhibits the phenomena of dimorphism in (*a*) a long form, which is megalospheric,[60] and (*b*) a short form, which is always microspheric.[61] This demonstration was arrived at by means of skiagraphs made for us by Mr. J. E. Barnard, F.R.M.S. The nature of the test, and the extreme minuteness and obscurity of the primordial chambers, made it impossible to produce satisfactory sections, but the skiagraphs, which we illustrate, demonstrate clearly the dimorphism of the species (figs 49, 50, on page 177).

The megalospheric form (*a*) is long, blunt, and rounded at the aboral extremity (or apex), and more or less parallel-sided in its growth, the tapering being very gradual (fig. 6). The primordial chamber is large, spherical, chitinous under a sandy investment (fig. 7), and sometimes divided into two chambers by an internal chitinous septum (fig. 8). This megalospheric form is textularian at the commencement. The normal triserial arrangement of the chambers commences immediately after the first pair of chambers, the second chamber being sometimes set by the side of, and flattened against, the primordial.

This subdivision of the primordial chamber by an internal septum (fig. 8) is too striking not to be at once credited with a distinct biological significance. It has already been noted by Wedekind in connexion with certain species of Nummulites; but he regarded it as being merely an abnormality resulting from the primordial union of two individuals.[62] The same phenomenon has been figured by d'Archiac, de la Harpe, and Prever in other Nummulites. References to their figures will be found in an important paper by H. Douvillé under the title "Les Foraminifères sont-ils toujours unicellulaires?"[63] He deals at some length with the subject, and ascribes the phenomenon to karyokinetic division of the primordial nucleus, and

[60] *Loc. cit.* (note 7), Pl. iv, fig. 1. [61] *Ibid.*, fig. 2.

[62] Scarff and Wedekind: "Der oberkarbone Sapropslit Spitzbergen," Bull. Geol. Inst. Univ. Upsala, vol. x, 1910-11, Nos. 19, 20, p. 103.

[63] Comp. Rend. Ac. Sci. Paris, vol, clxvii (1918), p. 146.

suggests a sexual association as a possible explanation of the condition in question. He lays stress upon the fact which we have ourselves observed in the tests now under discussion, viz.: that the first chamber of the spiral series is placed as it were astride of the flattened or plane septum dividing the twin primordial chambers, which he regards as proof that this latter chamber is formed by the equal fusion of the protoplasmic contents of the two primordial chambers.

The diameter of the megalosphere, measured across the interior of the chitinous wall so as to eliminate the varying thickness of the sandy wall, averages 70μ, but primordials have been measured as low as 50μ, and as high as 90μ, though these exceptions are rare. A primordial exhibiting an internal septum was found to be 50 × 68μ.

The microspheric form (*b*), on the other hand, is short, and has a sharply pointed test, commencing with a number of minute chitinous chambers invested with very fine sand (fig. 9). The arrangement of these chambers is not always easily identifiable. They are sometimes acervuline, sometimes in a flattened, rotaline spire, sometimes apparently spiroplectine. Or it may perhaps be always a spiroplectine arrangement, set at differing angles to the main axis, and so presenting different aspects. These early chambers are followed by numerous triserial chambers, very small at first, and then rapidly increasing in size so as to give a turgid appearance to the test. The chambers are chitinous under a sandy investment for some distance from the apex, and they are very numerous as compared with the megalospheric form (fig. 10). The microsphere is not always easy to discover or measure, as it is often surrounded by a mass of small chambers, spirally or irregularly arranged; but a careful series of measurements gives an average of 13–15μ. A few individuals were found with larger microspheres, including one of 25μ and one of 30μ.

All the (*b*) short broad forms appear to be invariably microspheric. A few of the long forms are to be found which, instead of being blunt and rounded at the apex, are finely pointed, and these are microspheric also.

We had in past years observed an occasional dwarf specimen of *Verneuilina polystropha* in several Goldseeker dredgings, but without realizing that they possessed any particular interest. But in 1913, when we found these dwarfs in material which we were examining for our Clare Island paper, we realized that they were exact facsimiles of the normal type in construction, number of chambers and the existence of a long form and a short form.[64] The only points of difference appeared to be the relative

[64] *Loc. cit.* (note 7), figs. 3–5.

size of the long and short dwarfs, as compared with the normal forms, which was about as 1 to 10, and their extreme rarity. In many of our dredgings the normal *V. polystropha* was a common type; but the dwarfs, even when present at all, formed but a minute fraction of the specimens, probably less than ·1 per cent. We had not up to this time identified these dwarfs with the figures of *V. pusilla* Goës, and in our paper we inclined to the view that they might prove to be the microspheric type of *V. polystropha*, but admitted that there was no evidence to prove this theory.

Since that time we have devoted a considerable amount of work to this little form *V. pusilla*, and in view of our demonstration of dimorphism in the normal types of *V. polystropha*, our theory of the microspheric nature of *V. pusilla* must be abandoned. All the evidence we have accumulated tends to show that it is merely an example of dwarfing or nanism.

V. pusilla is unquestionably very rare. In searching for it we have re-examined some dozens of dredgings in which the normal *V. polystropha* occurs, but have added very few records to those previously known. Moreover, with one exception, the specimens found in any particular gathering are in the infinitesimal proportion already mentioned. The single exception is a very muddy dredging made in 15 fms. off the Tan Buoy, Millport, in the Clyde area, where *V. pusilla* occurs in considerable numbers, forming perhaps as much as 1 per cent. of the total specimens of *V. polystropha.* From these specimens we have drawn up the following diagnosis of the variety.

Test free, minute, very finely arenaceous. Colour usually deeply ferruginous, but often white in the later chambers, and sometimes white throughout. Occurring in two forms—(1) a long form gently tapering to the aboral extremity, commencing with a spherical primordial chamber of chitin, without sandy investment, which projects from the apex, followed immediately by a triserial arrangement of sandy chambers regularly increasing in size (figs. 11 and 12). Average length of full-grown specimens, about ·3 mm., but attaining at times ·4 mm.

(2) A short form rapidly increasing in breadth owing to turgidity of chambers. Aboral extremity, when perfect, terminating in a spherical primordial chamber, but in most of the specimens examined this was wanting, and the test commenced directly with a triserial arrangement of chambers (fig. 13). Average length, ·17 mm., but attaining ·2 mm.

The long and short forms are exact facsimiles in miniature of the normal *V. polystropha* occurring in the same gatherings, but their size varies between one-sixth and one-tenth of the normal. The long dwarf form is of much more frequent occurrence than the short, which has not been

observed at all in some dredgings where the long form occurs. At Tan Buoy, Millport, the proportion of long to short is about 50 to 1.

Measurement of the primordial chambers reveals the striking fact that the globular primordial chamber of the long dwarf form averages about 15μ. It will be observed that this agrees with the average primordial of the microsphere of the normal form, and we are therefore faced with the fact that a tapering shell is connected with the megalosphere in the normal form, but with the microsphere in the dwarf. As with the normal form, there are exceptional specimens in which the microsphere measured as little as 12μ and as much as 18μ.

The measurements of primordials of the short dwarf form offer no solution to the problem. Of the relatively few specimens available, some agreed with the long form, having a diameter of 15μ, but other specimens gave a diameter of 18μ, 20μ, 25μ, the last being nearly double the average size, and noticeably large and thin-walled. As already stated, the primordial is frequently missing in the short form, though very rarely wanting in the long. What the significance of these differences may be we cannot at present say. The only localities from which these pygmy forms have been recorded are as follows:—

(i) Greenland, 35–50 m. (*passim*, Goës, 1894).
(ii) Pacific Ocean, 995 fms. Goës, 1896.
(iii) Clare Island (W. of Ireland), H.-A. and E., 1913.
(iv) Millport (off the Tan Buoy), H.-A. and E.
(v) Loch Striven, 70 fms. (W. Scotland), H.-A. and E.
(vi) Gulf of St. Lawrence (Canada), 212 fms., H.-A. and E.
(vii) Terra Nova Stn. 355 (Antarctic Benthos, 13), 300 fms. H.-A. and E.

We have never observed the dwarf in the living state or found it in our tanks. This dwarf, or pygmy, form cannot be confused with young specimens of the normal form. The latter occur in quantity in any material in which the species is common, and exhibit as a rule a primordial chamber, and one, or perhaps two, triserial groups of chambers (fig. 14). They are, exteriorly, rough in texture, and cannot be mistaken for the smooth and many-chambered dwarf *V. pusilla* Goës.

The marked tendency of *V. polystropha* to select and incorporate heavy minerals among the normal siliceous sand grains, of which it constructs its tests, presents a biological problem which is still far from solution, but the fact stands out with striking prominence (figs. 15, 16). We have referred above to our earliest observations of this phenomenon, which aroused con-

siderable interest when we first published them. With a view to carrying the matter further, we had made for us a fine sand—almost a mud—by the crushing of rough gems, including ruby, sapphire, emerald, topaz, olivine, peridot, garnet, tourmaline, and others. This was mixed with 50 per cent. of ordinary sand and a number of living specimens of *V. polystropha*, washed from weeds at the Mixon Reef (a group of rocks exposed at low tide about a mile south of the point of Selsey Bill, Sussex), were placed with this gem-sand in two tanks, one filled with normal sea-water, and the other filled with sea water rendered hypertonic by doubling the normal lime content by the addition of 2·8 gr. of Chloride of Calcium per litre of sea-water.

The first attempt proved a failure. Owing to the fact that the gems had been crushed with steel rollers, the sand contained so much iron that all life in the tanks died. The sand was removed, boiled in acid to eliminate the iron, washed and dried, and the experiment renewed. As a result of the washing, a good deal of the finer sand was inevitably lost, but this unexpected factor has in the result increased the interest of the experiments, which were commenced in the spring of 1915. The creatures were left undisturbed (excepting that the evaporation was compensated by the addition when required of rain-water) to increase and multiply until the spring of 1919, when the contents of both tanks were removed, washed, and examined. In both tanks the results exceeded our anticipations.

Most of the adult tests, and all the younger ones, which had been born in the tanks had incorporated gem-sand in their tests (figs. 17, 18), and a proportion of the creatures had utilized gem-splinters of a size and shape utterly disproportionate to the size of the tests, thus producing a variety which presents a striking contrast to the normal type, which, as we have observed, is usually of a neat and smooth external texture (figs. 19–23). The tendency of *V. polystropha* to utilize heavy minerals and its selective powers appear therefore to us to be conclusively established, for the specific gravity of the gems employed being much higher than that of quartz sand, 2·65 (garnet, the commonest gem in the sand, having a sp. gr. of 3·7 to 4), the gem fragments always sink in the sand at the bottom of the tank, below the surface layer, which would form the normal habitat of the Foraminifer.[45]

[45] Our friend, Mr. Allan B. Dick, who has made a special study of the heavy minerals to be found in almost all sands, has suggested that in moving water the lighter sand is continually being washed away by elutriation, leaving the heavy minerals on the surface, but we cannot accept this theory in face of the conditions obtaining in our tanks, and for other reasons which are set out at length in Heron Allen's "Statement on the Theory and Phenomena of Purpose and Intelligence exhibited by the Protozoa, as illustrated by Selection and Behaviour in the Foraminifera," Journ. R. Micr. Soc., 1919, p. 345 (foot-note).

Another surprise awaited us when we came to examine the material from the tank which had been filled with superlimed (hypertonic) sea-water. A considerable proportion of the specimens of *Verneuilina polystropha* were monsters. They include specimens with supernumerary or abortive chambers, in some cases almost fistulose. Other specimens born in our tank were actual monstrosities. There were complete pairs of tests joined together mouth to apex (fig. 24), and other specimens joined apex to apex (figs. 25–27), and yet others presenting every conceivable eccentricity of form and development (figs. 28–33). The influence of artificially enriched water upon the life-habits of the Foraminifera appears therefore to us to be established in the case of *V. polystropha* in the same way as it was in the earlier experiment with *Massilina secans*.

As a check experiment, we placed in the same superlimed water a quantity of living *Massilina secans*. When examined it was found that tests presumably adult when placed in the tank had added later monstrous chambers, whilst others born in the tank were wholly monstrous *ab initio*, the chambers running riot, as it were (figs. 36–43); and again we found, sometimes combined in a single test, the characteristic features of the three species produced in the earlier experiment. Other specimens had proceeded, after the completion of the milioline shell, to add rectilinear chambers in the manner of Vertebralina or Articulina (fig. 44). In one instance a perfectly chitinous shell had added a terminal chamber perfectly and normally calcareous (fig. 45).

Whilst this paper has been in course of preparation, we have received from Mr. Henry Sidebottom a small sample of material dredged in eight fathoms from "White Dog's Anchorage, River Min, China," containing a remarkable series of tests of *Textularia luculenta*, Brady, some of which exhibit the same striking feature of projecting mineral fragments as our new Selsey variety of *V. polystropha* (figs. 46–48). The occurrence is of great interest, because the Textularians are as a rule very neat builders. Indeed outside the Astrorhizidae the invariable habit of species constructing adventitious tests is to incorporate the material employed as evenly as possible. We have no information as to the nature of the dredging, but it seems possible that the River Min Textularians suffered from the same lack of fine material as the Verneuilinae in our Selsey tank, and so were forced to employ mineral fragments of abnormal size.

To sum up the results of the observations which are recorded in this paper, it seems clear that if the biological characters which determine species are originated and evolved, as appears to be the case in the Metazoa, by the circumstances of environment, the argument holds good with enormously

superior force in the Protozoa—and for that very reason should be approached and dealt with with the utmost caution. As far as the Foraminifera are concerned, it seems to us that the various systems of classification which have been successively suggested, and accepted, are more or less artificial and unscientific. Taking a single example, it seems to us that the whole of Brady's Family, the Lituolidae, should be redistributed (as suggested by Bütschli and Lister) among their hyaline and porcellanous isomorphs

Until the time arrives, if it ever does, when science will be able to discriminate between the protoplasm of different protozoa, it will be necessary to employ the plan of construction and arrangement of the chambers as a basis for the taxonomical arrangement of the Foraminifera, although we already possess proof that such plans of growth are subject to change even in individual species. But the time must come when the genera of Foraminifera will be grouped on a more natural system than at present; on a system in which the processes of construction, and habits of growth and reproduction, will be counted of more value than the material employed in the construction of the test. For, if a box-maker had no wood, he would use some other material; he would produce a different kind of box, but it would not necessarily be a different "species" of box; and so if the animal of Technitella (for example) had no spicules to work with, it would use something else, but this should not result in a different genus, even though we should not be able to recognize its origin, or to identify it as a Technitella.

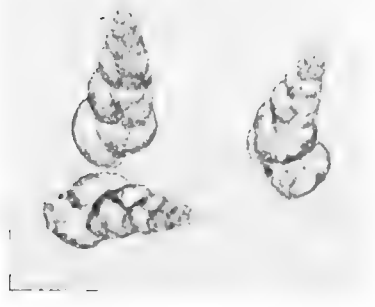

FIG. 49.—*Verneuilina polystropha* (Reuss). Skiagraphs of normal microspheric specimens.

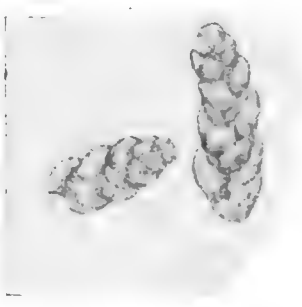

FIG. 50.—*Verneuilina polystropha* (Reuss). Skiagraphs of normal megalospheric specimens.

IX.

THE GENUS CORALLIMORPHUS.

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(Plates XIX, XX.)

[communicated by R. SOUTHERN, B.Sc.]

Read May 10. Published August 19, 1920.

The specimens which provide the material for this short paper are part of a collection of Actiniaria taken off Ireland by the Fisheries Branch of the Department of Agriculture and Technical Instruction for Ireland during the years 1899-1913; and a description of other species in this collection will be found in a recent number of these Proceedings (vol. xxxiv, section B, No. 7, pp. 106-164).

The genus Corallimorphus was founded by Moseley in Trans. Linn. Soc., Second Series, vol. i, Zool., 1879, p. 299, with *C. profundus* described first in order, then *C. rigidus*. R. Hertwig wrote a good deal more about the genus in his Report (and later in the Supplementary Report) on the Challenger Actiniae, and it has been mentioned by other authors.

Corallimorphus, Moseley, 1879.

Stichodactyline Actiniaria, with weak musculature throughout. Body-wall ectoderm has weak longitudinal musculature. No sphincter. No ciliated streaks to the mesenterial filaments, and no true actinopharyngeal grooves. Body-wall and oral disc may be very thick and cartilaginous, and animal may attain fairly large size. Tentacles simple, and all knobbed at the tip, divided into two sorts, marginal and discal. There is never more than one tentacle of each sort arising from one and the same endocoel. The exocoelic tentacles are the smallest of the marginal series, taken on the whole, and the discal tentacles correspond to the endocoels of the inner marginal tentacles.

C. rigidus, Moseley.

(Plates XIX, XX; text-figs. 1 and 2.)

Locality.—SR. 336. May 12, 1906. Lat. N. 51° 19′; Long. W. 12° 20′. Trawl. 673–720 fathoms. 2 specimens.

Measurements: (i) *Larger Specimen.*—Diams. of pedal disc, 5·6 × 4·4 cm.; oral disc, 7·0 × 6·1 cm. Length of a large tentacle, 1·5 cm. Height of body, 2·3 cm. Length of mouth, 1·75 cm.

(ii) *Smaller specimen.*—Height of body, 1·4 cm. Diam. of oral disc, 3·8 cm.

External characters.—The two specimens are photographed in Pl. XIX, and this shows the general appearance very well, as seen from above. I am indebted to Mr. F. Culliford, of Aberystwyth, for the photograph. The smaller specimen is attached to a piece of stone like coal. The body is rigid and glassy; so is the oral disc, into which the body-wall directly passes, without any special margin. The mesogloea is interesting. In the oral disc and most of the body-wall it is extraordinarily thick (as a glance at Y and Z, text-fig. 2, will show), and is firm and semi-transparent, rather like soft cartilage. In the actinopharynx and pedal disc it is not usually thick (see Z). The larger specimen has the pedal disc very scarred and smaller than the oral disc, whereas in the smaller it is well expanded, and hardly if at all smaller than the oral. The oral disc has not very distinct radii. The large specimen has 42 ridges and furrows on its body-wall, the furrows corresponding to the mesenterial insertions, the ridges to the exo- and endocoels. Text-fig. 2, Y, shows a diagram of a transverse section of body-wall, actinopharynx, and directive mesenteries in one-half of the larger animal. It displays the thick wall with its ridges, and shows how the furrows correspond to mesenterial insertions. These insertions are indicated by breaks in the boundary-line of the inner side of the wall, and it will also be noticed that the exocoels and endocoels are often pointed in section; the mesenteries themselves, except the directives, are omitted; they are too complicated for inclusion in an outline sketch. The ridges on the body are less definite in the small specimen. The oral disc is flat and thick, and the tentacles pass through it as tubes lined by endoderm. Text-fig. 2, Z, should be referred to here; it represents in outline a vertical section through one-half of the body of the large specimen, passing through a directive endocoel, and thus including 2 tentacles, one marginal and one discal. All the tentacles, both marginal and discal, consist of a shaft and a terminal knob, the shaft being rather

flaccid. There are two sorts of tentacles: some occur near the margin of the disc, and are arranged in alternating cycles, decreasing in size from within outwards, though there may be irregularities about size; others occur on the disc itself, between the peripheral series and the mouth, and these too are arranged in cycles, but are placed on the same radii as some of the

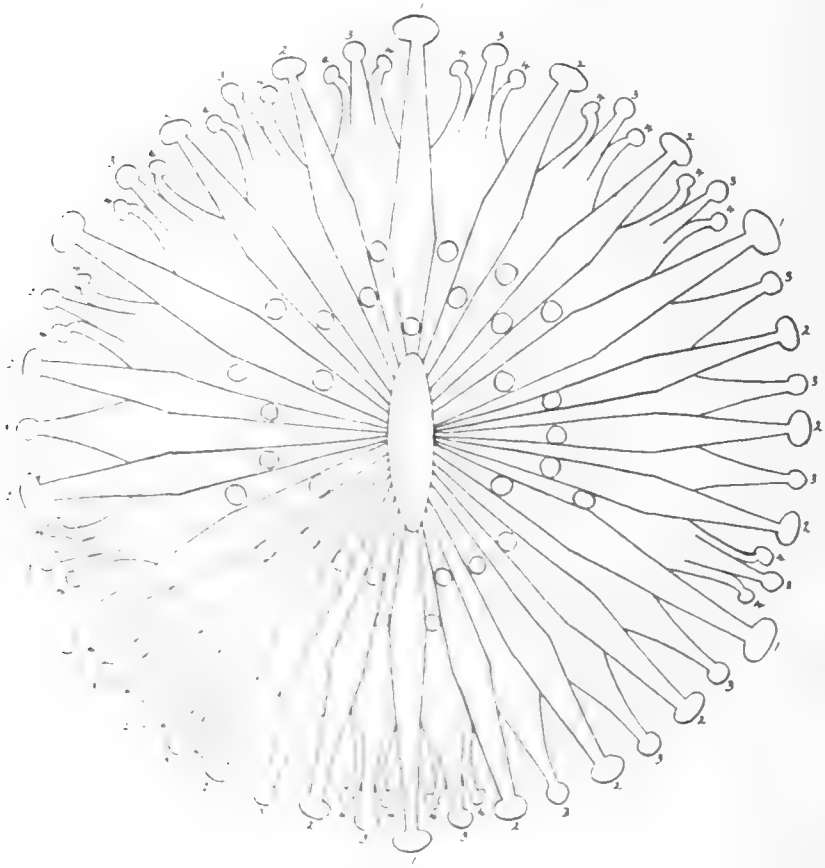


FIG. 1.

Numbers indicate tentacle-cycles.

marginal set. In the large animal the marginal tentacles are 6 + 15 + 21 + 26 = 68 in number; in the small one they are 6 + 14 + 20 + 20 = 60, and here one of the secondary tentacles is double. The disc-tentacles occur on radii belonging to the 3 inner cycles of marginal tentacles; they run 5 + 15 + 11 + 31 in the large specimen (one of the directive radii having no tentacle but its marginal one), and 6 + 14 + 1 in the smaller. In each case the 3rd

cycle is incomplete. Text-fig. 1 is a map of the tentacle-arrangement of the large specimen. Actual proportions are not meant to be represented in it. The marginal tentacles are shown in outline, the others as circles, and the main mesenteries are shown as single lines radiating from the actinopharynx. It will be noticed that where 4th cycle tentacles appear at the margin they come one on each side of a 3rd cycle tentacle, and that 3rd cycle disc-tentacles do not occur over the endocoel of any 3rd cycle marginal tentacle which has not yet attained its 4th cycle neighbours.

Internal structure.—There are 21 pairs of large mesenteries which join the actinopharynx. They include 2 pairs of apparent directives, and 10 lateral pairs on one side, 9 on the other. This and all subsequent anatomy applies to the large specimen; the small one I did not dissect. There are smaller mesenteries, apart from the 21 main pairs, probably occurring in all sectors where 4th cycle tentacles are found. I confirmed their existence in 2 sectors, but did not wish to damage the specimen enough to do so in all; however, they doubtless exist. I could not exactly determine their extent, nor can I say much about the other mesenteries, because the internal preservation is not good, and more could not be ascertained without complete destruction of the specimen. The large mesenteries fill up the coelenteron, and are thick and much twisted and complicated in places. They have a most curious appearance in sections. The endoderm is thick, the mesogloea variable—it is typically thick and curiously lobed in outline where the mesentery leaves the body-wall, then very thin and irregular, and twisted up in the middle part of the mesentery, and thick again close to the actinopharynx, at the level taken by my sections. The part of a mesentery where it joins the wall is shown in Pl. XX, fig. 2, which includes the lobed and thickened part of the mesogloea, and also the beginning of the thin part, and shows the general look of the endoderm. The body-wall is at the bottom end of the figure. Fig. 4 shows simply the mesogloea from another mesentery, and only the part adjacent to the body-wall, as a less lobed example. The musculature of the mesenteries is merely a feeble fringe, hardly visible in the figure, and not forming processes, as in most anemones. The directives are shorter and thicker throughout than most of the others.

There is no perceptible differentiation of siphonoglyphes. The mesenterial filaments in my sections are simple (Pl. XX, fig. 1), but they have at the proximal side, on either side of the stem, a concentration of nuclei which rather suggests the forerunner of a ciliated lobe. There is no sphincter. The musculature in the ectoderm of disc and tentacles is weak, but better developed than elsewhere in the body, sometimes even rising into short

processes, with tufts of fibres on them. This applies to the shafts of the tentacles only; the heads have little or no musculature. A vertical section of a portion of oral disc is shown in Pl. XX, fig. 5, and here some of these short processes may be seen fringing the mesogloea (which is below) and

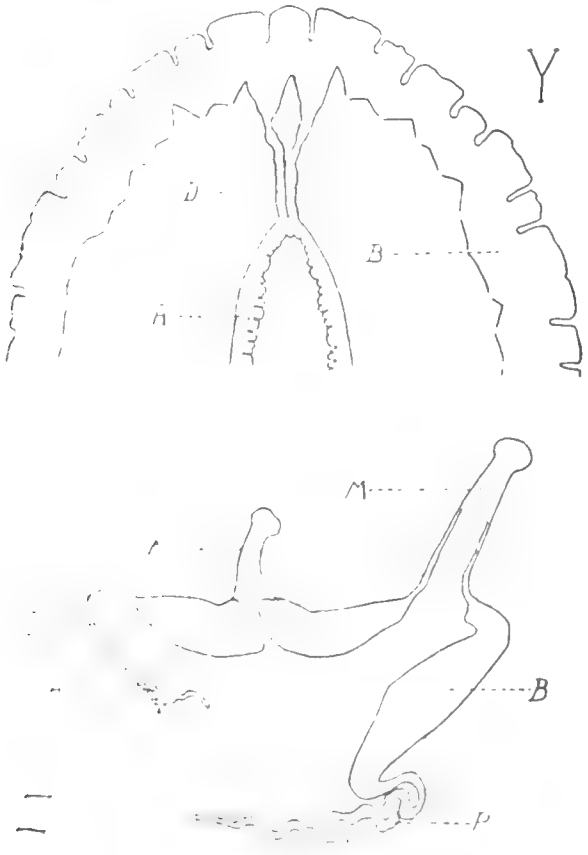


FIG. 2.

A, actinopharynx. *B*, body-wall. *D*, directive. *K*, disc-tentacle. *M*, marginal-tentacle. *O*, oral disc. *P*, pedal disc.

projecting into the ectoderm (above). The ectodermal longitudinal muscle-fibres in the body-wall are perfectly clear: I can confirm Hertwig's observation of their existence. I have not given figures of them here, but prefer to do so in pencil in a later publication. I am doubtful about the existence of ectodermal muscle in the actinopharynx, however.

I do not wish to discuss the histology here, except to say that the species

possesses very large nematocysts. One of these, taken from the body-wall ectoderm, is figured in Pl. XX, fig. 3. It is not very clear, because it was surrounded by other cells in a section, but will serve to show the size and general appearance. Its outline was traced with a camera lucida under oc. 3 and a $\frac{1}{12}$ oil-immersion lens, and the size therefore is accurate.

General considerations.—Three species of *Corallimorphus* have been described by Moseley and Hertwig, not very different from each other. These Irish specimens are not quite like either, but are nearest to *C. rigidus*. The question arises: are the three species really distinct (for, if so, the Irish form would probably require a fourth), or do they all belong to one variable species? We only know the entire genus from partial descriptions of a limited number of specimens, of which hardly two are quite alike. One criterion of separation used by Hertwig is that in *C. rigidus* the furrows on the body-wall correspond to mesenterial insertions; and in *C. obtectus* they correspond, at any rate in part of the body, to the middles of the exocoels and endocoels. This seems a trivial feature, and one liable to individual freaks of growth of the mesogloea. When we come to the tentacular arrangement, we find that the distinction of *C. profundus* is that its disc-tentacles do not exceed 12 or 13 in number, however large it gets, whereas in the others there are more, up to 31. This may be a valid distinction, but would require a larger amount of material for verification. As a matter of fact, the arrangement of the tentacles varies a good deal, and forms a sort of series in the genus, as the accompanying table will show. It may be noted that the number of marginal tentacles runs from 42–48 in the *rigidus* and *obtectus* of Moseley and Hertwig, 48–52 in *profundus*, and 60–68 in the Irish form. Again, the disc-tentacles in Hertwig's and Moseley's *rigidus* and *obtectus* run 12 (young specimen), 20, 22, 24 in different specimens. In *profundus* there are 12 or 13; in the Irish 21–31. It is worth noting also that in the small specimen referred to in the table as *rigidus* 1, and which Hertwig assumed to be young, the full number of marginal tentacles was present, although only 12 discals. The Irish specimens are quite distinct in one way—the number of secondary marginal tentacles is 14–15, whereas the other forms have only 6–7 of them; and there are corresponding changes of number in the 3rd and 4th cycles. Again, although one Irish specimen is much smaller than the other, it has nearly as many tentacles—a fact which points to its being adult, but poorly nourished. A point Hertwig mentions is the relative diameters of oral and pedal discs. This is not valuable here as a specific character—the two Irish specimens, obviously the same species, differ in this respect. *C. obtectus* had 24 pairs of

mesenteries, 12 pairs perfect; the Irish form has 34 pairs, 21 pairs perfect, at least.

Name of Specimen.	Disc Tentacles.				Marginal Tentacles.				
	1st cycle.	2nd cycle.	3rd cycle.	Total.	1st cycle.	2nd cycle.	3rd cycle.	4th cycle.	Total.
Large Irish, . . .	5	15	11	31	6	15	21	26	68
Small Irish, . . .	6	14	1	21	6	14	20	20	60
Hertwig's *obtectus*, . .	6	6	12	24	6	6	12	24	48
Hertwig's *rigidus* 1,[1] . (Young.)	6	6	0	12	6	6	12	24	48
Hertwig's *rigidus* 2, . (Larger than 1.)	6	6	8	20	6	6	12	24	48
Hertwig's *rigidus* 3, .	6	6	10	22	Irregular.				42
Hertwig's *profundus* 1, .	6	7	0	13	6	7	13	26	52
Hertwig's *profundus* 2, .	6	6	0	12	6	6	12	24	48

In the light of these facts, it looks as if in this genus the individual were a law unto itself, and as if the differences in tentacle numbers and body-wall furrows were individual, nutritional, or other variations. It is conceivable that "*C. profundus*" is constituted by specimens which grow up quickly and attain large size before forming more than 12 disc-tentacles, and, perhaps, then cease growth, as far as tentacle-formation goes. The Irish specimens seem to be a case of difference in rapidity of growth in size, but not in tentacle-formation. The unusual body-wall ridges of "*obtectus*" may similarly be a special individual overgrowth of mesogloea, which at some point of development started its fastest increase in bulk at points intermediate between the usual and original growth-centres. One is bound to

[1] Hertwig had 5 specimens of *rigidus*, of which I have included 3 in the table, and have numbered 1, 2, 3. He described another as *rigidus* in 1882, and changed it to *obtectus* in 1888. His 2 *rigidus* specimens not in the table seem to be regular; same arrangement of tentacles as *obtectus*. A certain number of the figures in the table are not actually stated by Hertwig, but can be deduced from his account.

leave the matter open pending examination of *numerous* specimens, but it is advisable to keep in sight the likelihood of all forms belonging to one species. On this supposition I have called the Irish forms *C. rigidus*, to which they are nearest, but that is using the term as inclusive of all the others; and if the names *profundus* and *obtectus* are kept too, the Irish form must probably have a new name.

There remains the more interesting question of the affinities of the whole genus and the family to which it belongs, and of its adaptation to its mode of life. I will not go far into its affinities at present, because I am waiting to form a final opinion until certain work with other Stichodactylines is finished; but I should like to mention a point or two. The creature is a very interesting one: it lives in deep water, and apparently, in correlation with that, it has a very thick body-wall, and seems immobile. Moseley made his account from living material, and, as far as one can gather from this, it was rigid even in life. What we cannot tell is how changed it was by leaving the deep sea, and, if it was as rigid down there as it is now, how it fed! Hertwig thought it a primitive form, because of its very weak generalized musculature; but we have to set over against that some other features which, as I have tried to show elsewhere, seem to be the reverse of primitive. These are the thick body-wall, the preponderance of diameter over height, and the large size; the numerous perfect mesenteries, the specialization of tentacles into two sorts, and of each of them into a head and a stem, and the large size of the nematocysts. The generalized musculature is perhaps a survival of primitiveness, or a degeneration connected with mode of life.

LITERATURE.[1]

1879. H. N. MOSELEY.—On new forms of Actiniaria dredged in the deep sea; with a description of certain pelagic surface-swimming species. Trans. Linn. Soc. Second Series, vol. i, Zoology, p. 295 (includes both description and coloured figures of Corallimorphus).

1882. R. HERTWIG.—Report on the Actiniaria dredged by H.M.S. "Challenger." "Challenger" Reports, Zoology, vol. vi.

1888. R. HERTWIG.—Supplement to above Report, vol. xxvi.

1900. O. CARLGREN.—Ostafrikanische Actinien. Mitth. Naturhist. Mus., Hamburg, xvii Jahrg., p. 21.
(Carlgren here mentions the genus, and associates with it Corynactis and Isocorallion, a genus founded by him for the Corynactis sp. of Hertwig's supplement).

[1] This is not a complete bibliography of the genus, but mentions the chief papers connected with it.

EXPLANATION OF PLATES.

PLATE XIX.

From a photograph of two Irish specimens of *Corallimorphus rigidus*, viewed from above, and somewhat reduced. Photo, F. Culliford, Aberystwyth.

PLATE XX.

Anatomy of *Corallimorphus rigidus*.

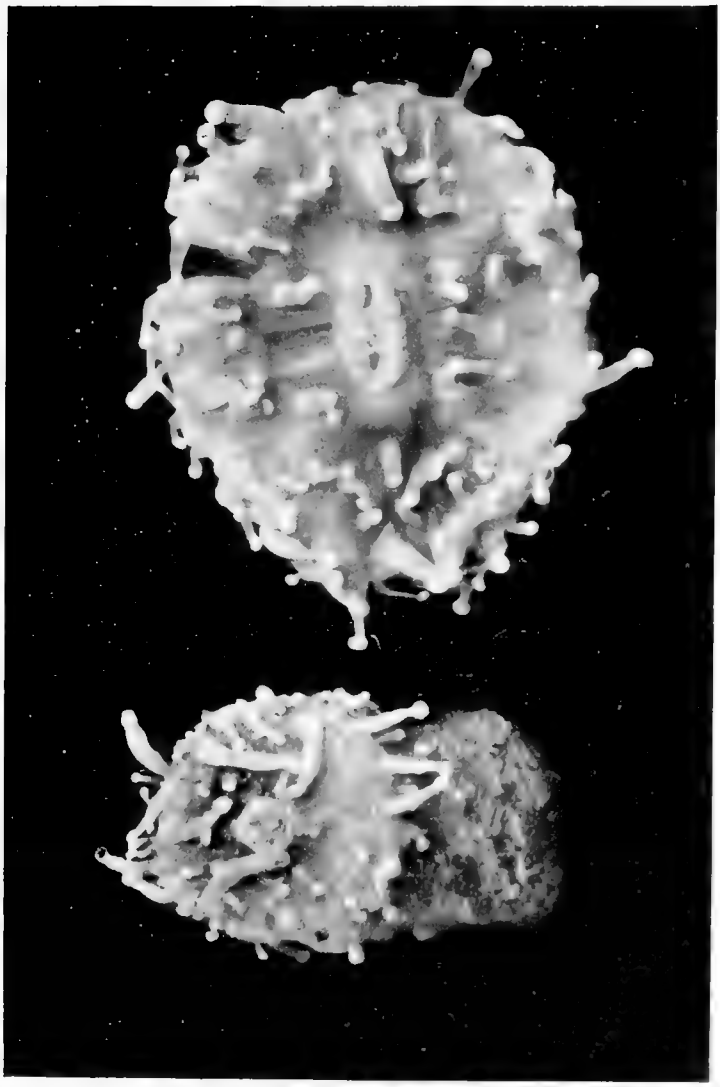
Fig. 1. T.S. of a mesenterial filament. Oc. 3. Obj. $\frac{2}{3}$.

Fig. 2. Part of a T.S. of a mesentery, showing that portion of it which is adjacent to the body-wall. Oc. 3. Obj. $1\frac{1}{2}$.

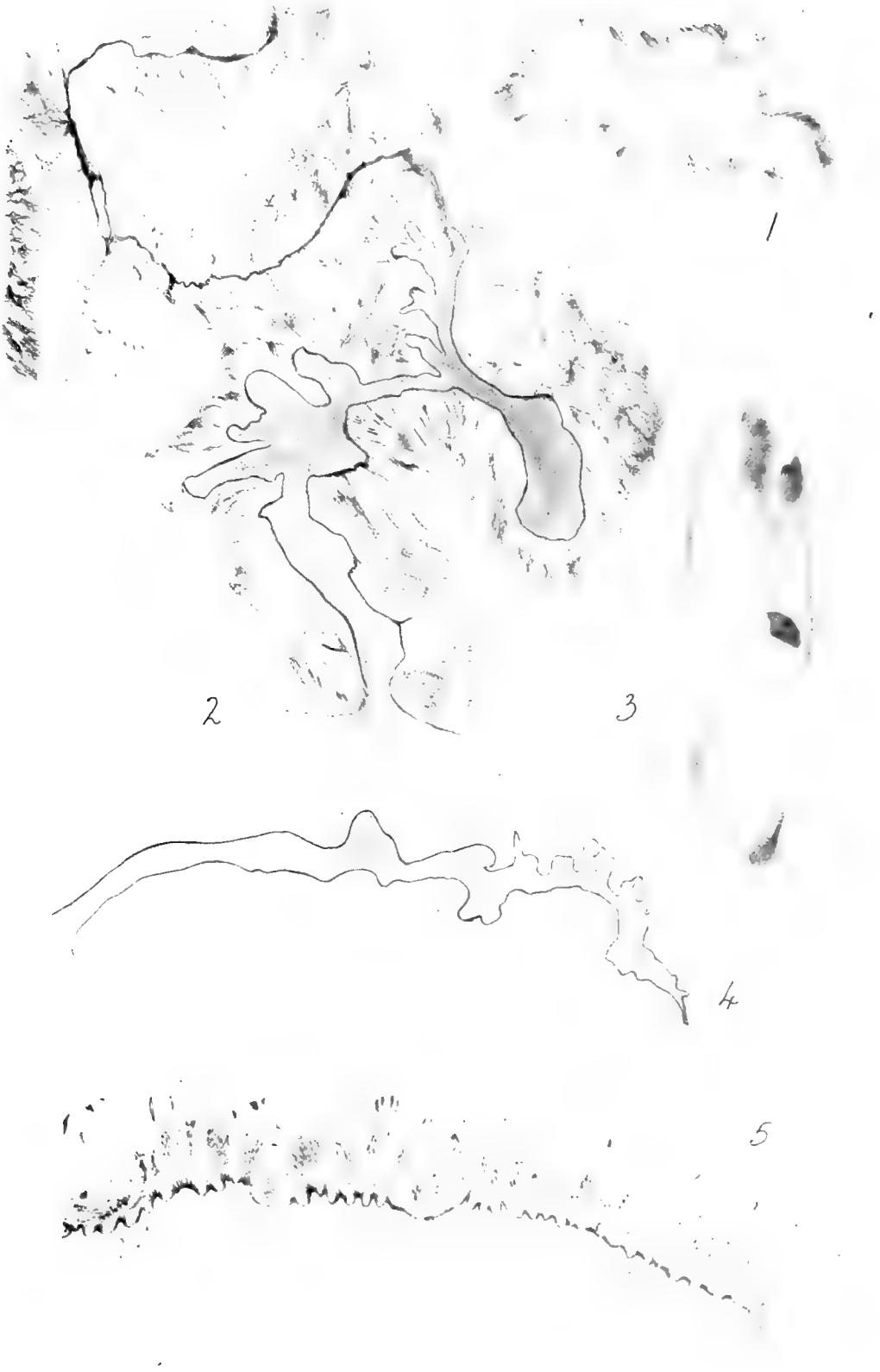
Fig. 3. Nematocyst from ectoderm of body-wall. Oc. 3. Obj. $\frac{1}{12}$ oil imm.

Fig. 4. T.S. of the mesogloea of the part of a mesentery adjacent to the body-wall. Oc. 3. Obj. $1\frac{1}{2}$.

Fig. 5. Vertical section passing through the ectoderm and part of the mesogloea of the oral disc, and showing the ectodermal musculature. Oc. 3. Obj. $\frac{2}{3}$.



Stephenson—Corallimorphus.

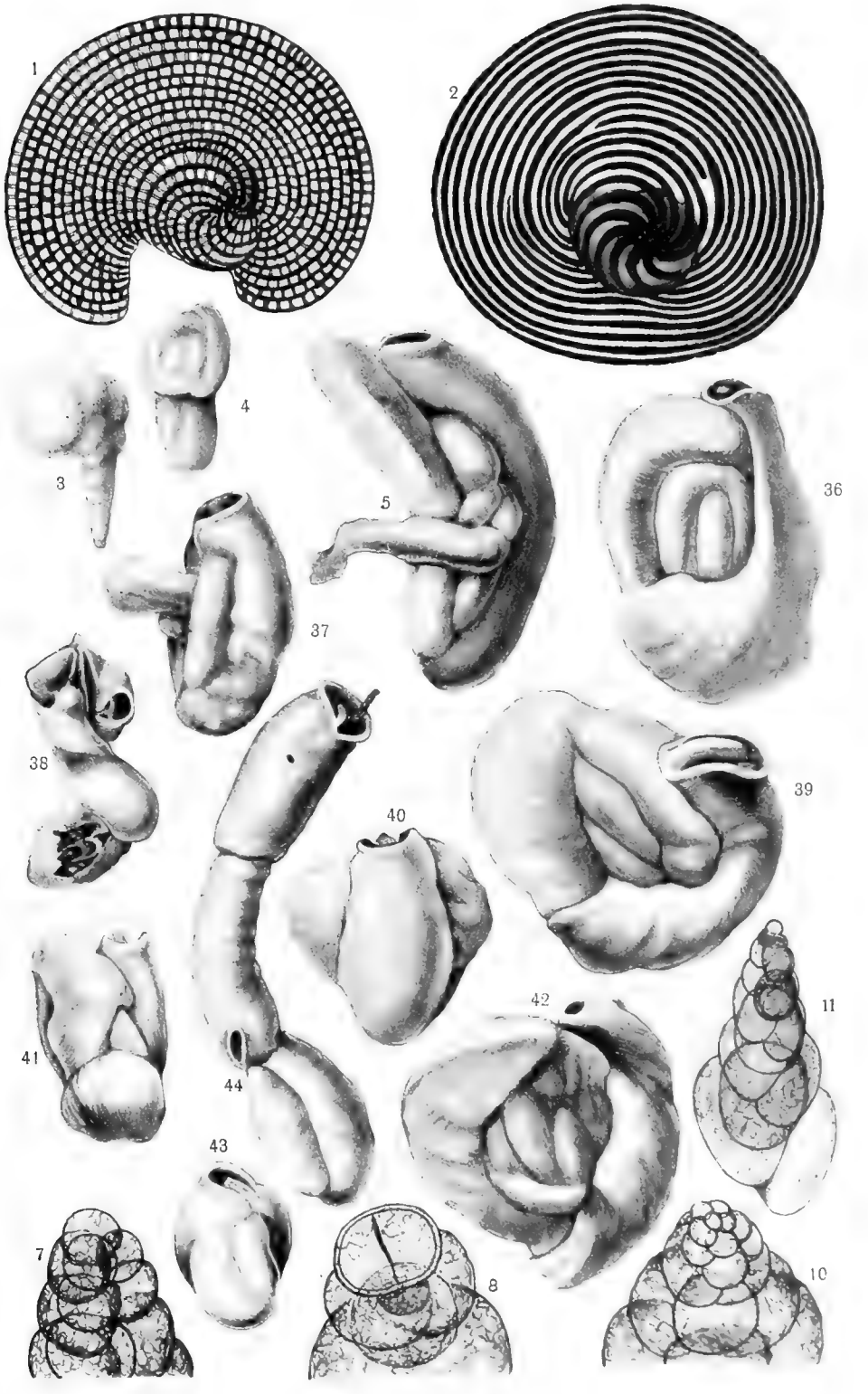


Stephenson—Corallimorphus.

EXPLANATION OF PLATES.

PLATE XVI.

DESCRIPTION OF FIGURES.



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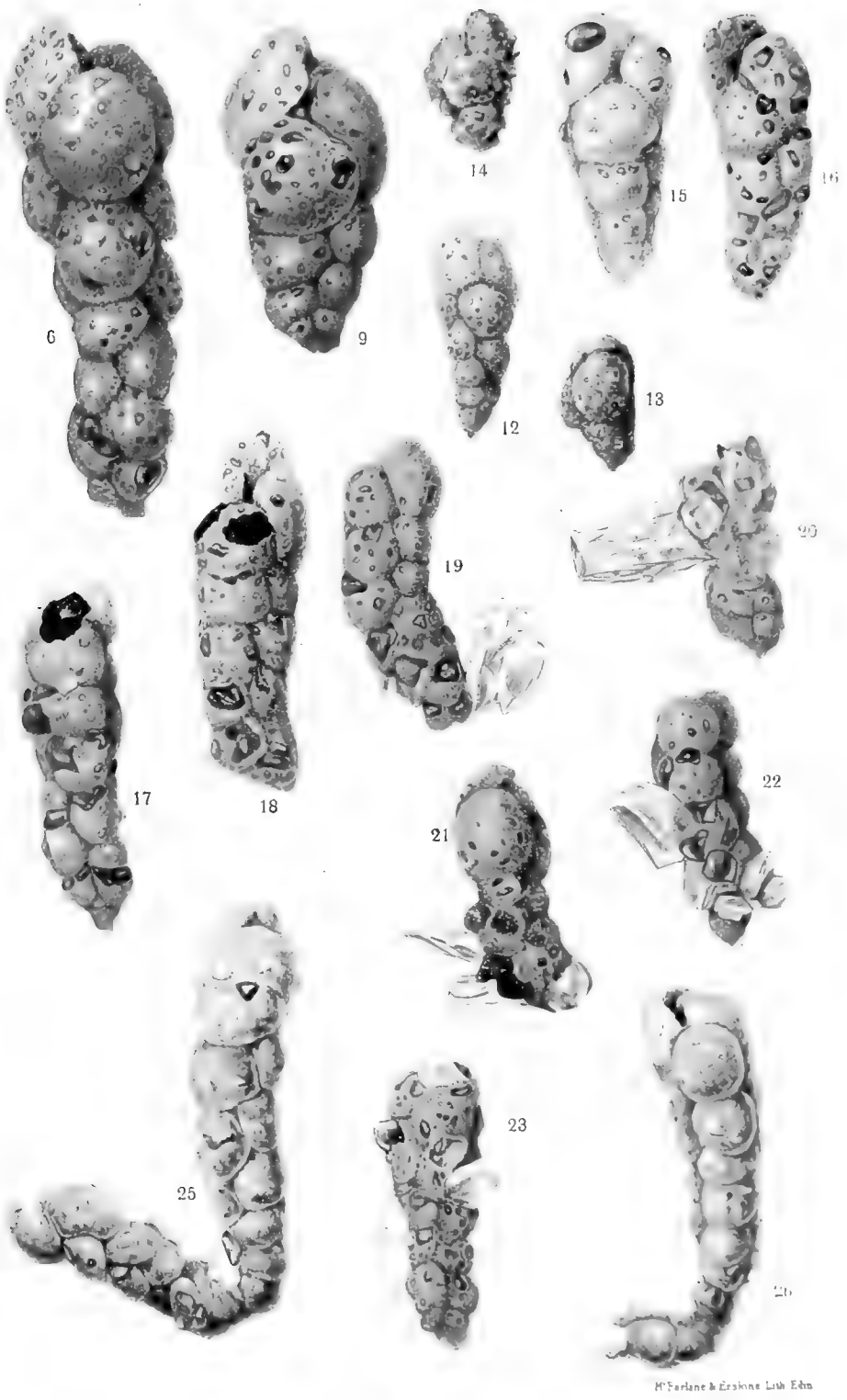
Heron-Allen and Earland.—On Verneuilina polystropha, etc.

EXPLANATION OF PLATES.

PLATE XVII.

DESCRIPTION OF FIGURES.

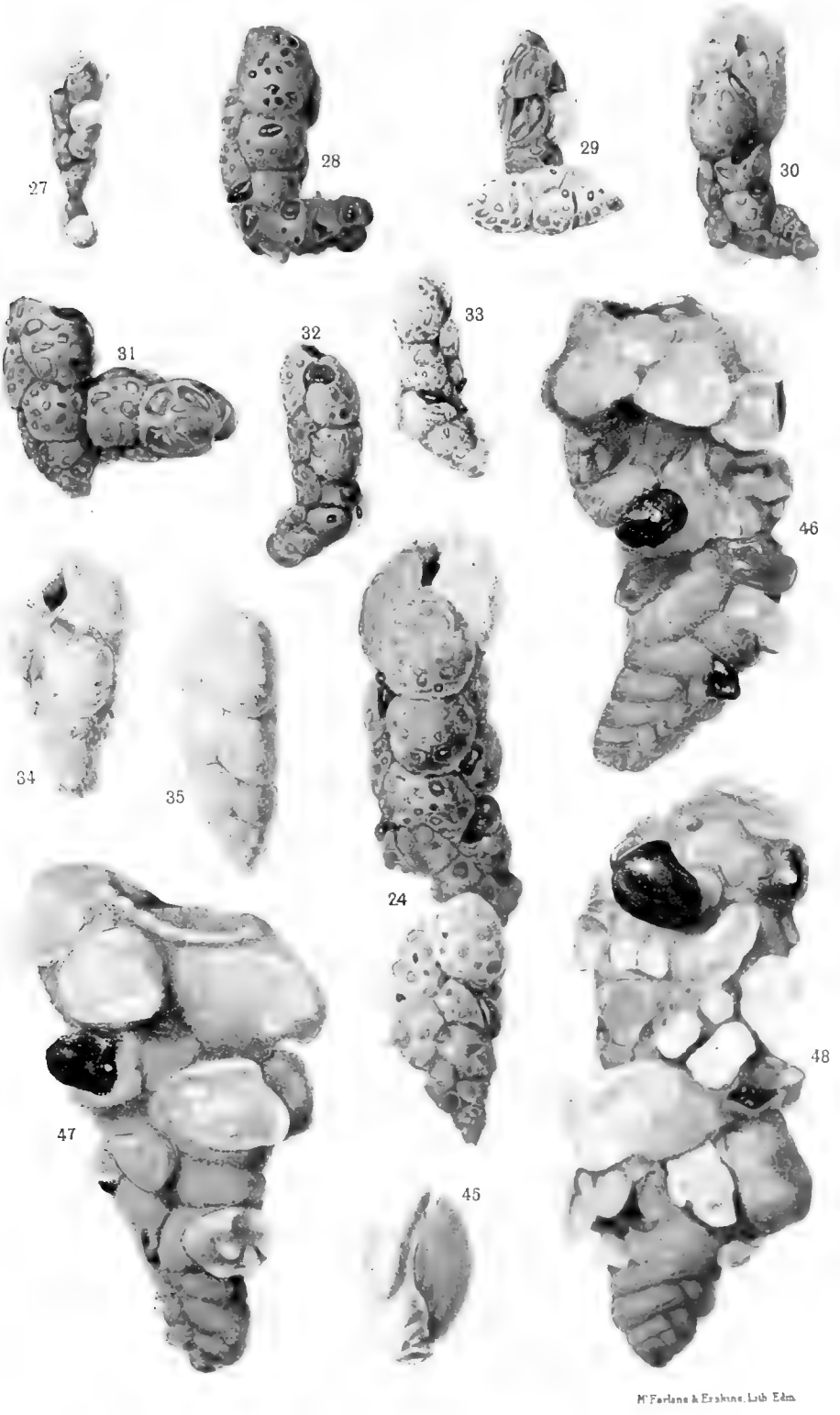


Heron-Allen and Earland.—On Verneuilina polystropha, etc.

EXPLANATION OF PLATES.

PLATE XVIII.

DESCRIPTION OF FIGURES.



Heron-Allen and Earland.—On Verneuilina polystropha, etc.

X.

LIMNESTHERIA: A NEW CONCHOSTRACAN GENUS FROM THE KILKENNY COAL-MEASURES.

By MABEL C. WRIGHT, A.R.C.Sc.I.

[Communicated by Professor Grenville A. J. Cole, F.R.S.]

(Plates XXIV, XXV.)

Read June 28. Published August 20, 1920.

I.—Introduction.

The fossils which form the subject of this paper were found in the Kilkenny Coal-Measures by one of the officers of the Geological Survey of Ireland during their recent revision of the Castlecomer area, and through the courtesy of the Director they were given to the author for description.

The best thanks of the author are due to Dr. W. T. Calman, Assistant in the Zoological Department of the British Museum, for his valuable help and guidance in the study of these ancient representatives of a very interesting and highly specialized order of Crustacea; and to Professor G. H. Carpenter, D.Sc., for many useful hints to a former student.

The Conchostraca, the order of small bivalved fresh-water Crustacea to which these fossils belong, are a group of animals of peculiar interest. Representatives of the order are found in nearly all the great land-masses of the globe, but their distribution is generally restricted to regions of meteorological extremes, where there is a marked contrast between summer heat and winter cold, where prolonged drought is followed by sudden rainbursts.

All known Conchostraca occur in inland waters, none having been found in the ocean.

Details of the life-history of the Conchostraca appear to be practically unknown, as far as the literature accessible would show, but the study of Sars on the development of Limnadia[1] doubtless gives an indication of the mode of life of Conchostraca generally. The little animals appear in small and shallow fresh-water pools, which dry or partially dry in summer.

[1] Fauna Norvegiae, Bd. I.

Their living period is limited to a couple of months and sometimes even less. The perpetuation of the species is secured by the production of eggs, which, when discharged from the carapace, drop to the bottom of the pool, remaining in the mud when the pool dries up. Sars has shown by experiment that these eggs will not hatch out until they are dried thoroughly, perhaps during several successive years or drought periods. Each egg is provided with curious wing-like expansions, not unlike the "wings" of many of our tree-seeds, and in all probability these enable the eggs to be dispersed by wind. The eggs are produced in great numbers, have tremendous vitality and by reason of their tenacious germinating power may be compared to the seeds of many plants. They serve to carry the species over one or more probably several long droughts, and hatch out into simple Nauplius larvae when the hollows are once more filled with pools of water.

The larval development only occupies a few days, during which time great changes take place and the rudiments of the carapace appear. This stage is followed by a post-larval stage, in the course of which the carapace develops as a bivalve shell, the lines of growth, as in the case of most Conchostracan shells, representing successive moults, and finally, after about one month, the adult animal is perfected. It lives in a sexually mature form rarely more than a month, during which time it provides for the continuance of the species by laying, in successive batches, many thousands of eggs. Each batch of eggs is laid in the interval between two moult periods.

Thus these animals show a marked degree of adaptation to their environment. The pools in which they hatch out may never be pools again, and so their brief life is spent in producing eggs, specially adapted for wide distribution and great drying, so that in whatever hollow the rain may accumulate in the next season it will provide a suitable hatching pool for the eggs brought there by the wind.

The order Conchostraca is divided into two families—the Limnadiidae, which includes the seven genera—Limnadia (Brongniart), Eulimnadia (Packard), Limnadella (Packard), Estheria (Rüppell), Cyclestheria (G. O. Sars), Leptestheria (G. O. Sars), and Limnadopsis (Spencer and Hall); and the Limnetidae, which includes the single genus Limnetis (Lovén).

Very little is known as regards the fossil representatives of the Conchostraca. Bivalve shells referable to the order appear in the Old Red Sandstone, and are found in fresh-water deposits of all the formations from that era up to the present day. In the early days these shells were considered to be molluscan, and were referred to such genera as Posidonomya and Cyclas. In 1862, however, T. Rupert Jones[1] demonstrated that their

[1] T. Rupert Jones: A Monograph of the Fossil Estheriae. Pal. Soc., 1862.

ornamentation displayed distinctive crustacean characters. By this piece of work he undoubtedly did a very great service to geology in rendering possible a more exact reconstruction of the conditions under which the beds containing these fossils were deposited, and in setting free stratigraphers from the apparent necessity of regarding such beds as marine or estuarine. None of his material, however, gave any hint of the body-characters of the animals whose remains he was studying, and it was not until 1914 that an advance was made in this direction. In this year Ph. C. Bill[1] described some impressions of an Estherian animal found by him in association with other crustacean remains in the Bunter of Alsace. These impressions appear to have been rather indefinite, and the figure given is certainly lacking in detail. The head-parts with the fornix, antennules, antennae and mandibles are shown, also the very simple telson and portion of the outline of the shell. The trunk and associated appendages are only vaguely suggested. Bill refers these appendages to *Estheria minuta* on the ground of association with

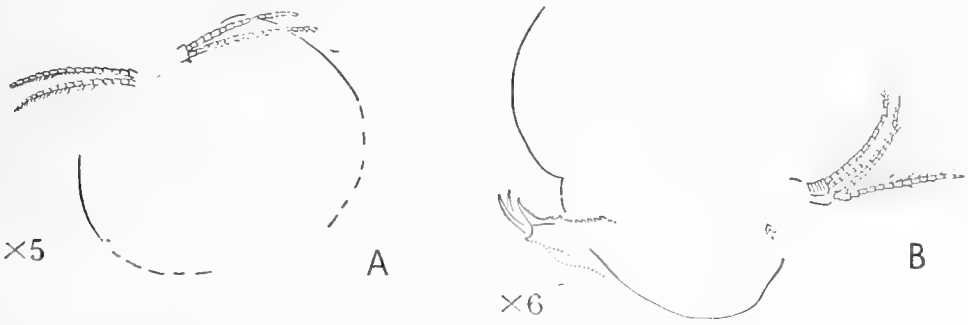


FIG. 1.—A. Specimen 11, showing antennae and valves of carapace spread apart.
B. Specimen 8, showing claspers displaced from normal position, and also, more than usually well preserved, the spine-like dorsal prolongations of the body segments in the posterior region.

the fossil shell to which that name has been given, but it is to be noted that he did not regard the evidence as entirely satisfactory. The shell impressions of the actual fossils do not show the concentric rings characteristic of *Estheria minuta*, but as he also found shells, one end of which showed the rings while the other was quite smooth, he considers that the gap is to a certain extent bridged, although he expressly states that the meaning of the phenomenon is not clear to him. Neither these composite specimens nor the normal specimens of *Estheria minuta* found in the same beds are figured, so that it is impossible to make any comparison of the outline of the shell with that clearly attached to the appendages.

[1] Ph. C. BILL: Mitt. der Geol. Landesanstalt von Elsass-Lothringen. Bd. VIII, p. 326, 1914.

This failure to get anything but the outline of the shell in those cases where the limbs are preserved is characteristic also of the Kilkenny material.

The best of the Kilkenny fossils show the two valves of the carapace either lying on top of one another (fig. 5 A) or spread apart in the same plane (fig. 1 A). These, however, show only their outline and delicately ciliated margins. The ornamentation of the shell surface has, with the very doubtful exception of a single penultimate ring in specimen 5 (= fig. 2 A), either completely disappeared or was never present.

FIG. 2.—Two specimens with the valves of the carapace spread apart :—

A. Specimen 5, showing antennae and telson with an indication of the outline of the body. For details of telson, see fig. 3, Pl. XXV.

B. Specimen 6, showing antennae and one mandible. The nature of the small V-shaped markings adjoining the mandible is unknown, but they possibly represent portions of the triangular base. (*Cf.* Pl. XXIV, fig. 1.)

No known living Conchostracan, with the single exception of the aberrant genus Limnetis, is without the concentric ridges which mark the moulting periods, and they are present also on the fossil carapaces of Estherian type that have hitherto been described. Lying generally in their proper relation to these outlined valves, but often much distorted, are various body-members—antennae, claspers, mandibles and telson—in a beautiful state of preservation, and all of normal Estherian type. The body-segments are less apparent, but can be detected in some instances.

FIG. 3.—Shell (Specimen 19) found closely associated with much-crushed appendage material, to which nevertheless two outline carapace valves were attached.

The non-appearance of the shell ornamentation is the more remarkable

in that Conchostracan shells are well preserved in the same beds and sometimes even on the same slab of rock. The shell shown in fig. 3 lies close beside a very much crushed animal, which, however, has two valve outlines of its own. It corresponds well both in size and shape with the outlined valve. The danger of judging from mere close association of this nature is, however, exemplified in fig. 4, where two fragments of antennae

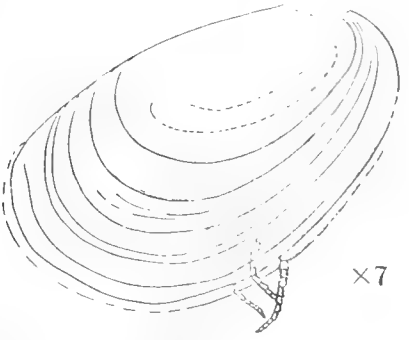


FIG. 4.—Shell (Specimen 10) of unusually large dimensions associated with antennae. The punctate surface characteristic of Conchostracan shells, modern and fossil, is shown in a small area near the centre of the shell.

which differ in no respect from the antennae of the more complete animals are found in contact with a relatively much larger shell of distinctive shape. Another well-preserved large carapace of Limnadopsis type—Limnadopsis being the giant of the order—also occurs in these beds,

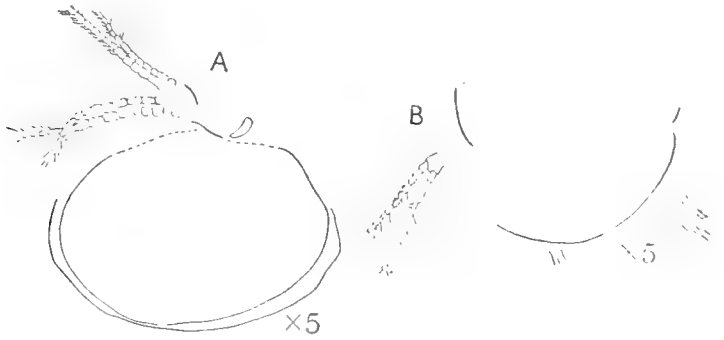


FIG. 5.—A. Distorted specimen (No. 12), showing valves, antennae, and one mandible.
B. Specimen 13, showing straight caudal furcae comparable to those of Specimen 4, figured on Pl. XXV, figs. 2 and 2*a*, and traces of three of the branchial legs. The relatively small size of the antenna and telson in this specimen may possibly indicate immaturity.

so that it is clear that we are dealing with a fauna embracing a number of Conchostracan forms, any of which might have become accidentally associated with the body-parts of which an account is given here.

The rock in which these fossils occur is an ordinary dark, almost black, Carboniferous shale. The surface of the shale is traversed by a grain or structure resembling cleavage, but probably merely due to the direction of fracture. The effect of this on the visibility of the fossils was very serious, but the difficulty was to a considerable extent overcome by mounting them in Canada balsam and covering with a glass slip. This procedure also had the advantage of preventing the decomposition of the pyrites, in which the fossils appear to be preserved. The usual difficulties of opaque illumination were experienced, but the best results were ultimately obtained by condensing the light from a single electric bulb along the grain of the rock. In preparing the plates and text-figures all the outlines, and as far as possible the details, were put in with the camera lucida, the sketches being completed freehand.

II.—Stratigraphical Position of the Fossils.

The following details as to the stratigraphy of the beds in which these Estherian fossils were found have been kindly supplied to me by the officers of the Geological Survey of Ireland:—

The fossils came from a depth of 830 feet in a boring put down by Mr. R. H. Prior Wandesforde at Ardra, a mile and a half N. 30° E. from the cross-roads in Castlecomer. They were collected by the Geological Survey, the officers of which, through the courtesy of Mr. Wandesforde, had access to the cores of all the borings put down by him in search of coal in this district. The beds in which they occur lie some five and a half fathoms below the position of the Skehana coal-seam, on or just above a well-defined stratigraphical horizon, which has been recognized in many parts of the Kilkenny coalfield. This horizon has been called the "fleck-rock" by the geologists working in the field—a name which fairly well describes its nature. It was recognized by Mr. Wandesforde at an early stage of the boring operations as possessing distinctive characters, and he drew the attention of the Geological Survey to it when they came to work on the field. It is a dark-coloured massive rock of remarkable toughness, having innumerable small flecks of slightly darker colour along the very obscure bedding planes. It generally yields badly preserved goniatites and other marine fossils, and where normally developed to the south and east of Castlecomer is obviously of marine origin, while the shales immediately above generally yield a very considerable marine fauna. The origin of the flecked structure is, however, quite unknown. As far as can be ascertained this is the normal condition of things as regards this horizon over the greater part of the coalfield, but in the Skehana district to the north-west of Castlecomer very marked lateral

variation sets in, and the place of the marine band is occupied by a massive sandstone, now known as the Woodview Sandstone. The strata on the same horizon in the Ardra bore show a condition intermediate between these two phases of sedimentation, and probably represent a transition from deltaic to marine conditions. The fleck-rock is present and shows the very characteristic flecking or mottling, but there is a complete absence of marine fossils. Moreover, the bed is much divided up and interleaved with sandy shales and sandstones, and the laminae of the fleck-rock have a much more shaly structure than it possesses in places where it is more typically developed.

The fossils described in the present paper do not occur actually in the fleck-rock, but in the slightly sandy shales about eight or nine feet above its upper layer. These shales may be equivalent either to the marine shales normally found above the fleck-rock in the districts lying to the east and south, or to the non-fossiliferous shales above these latter. Further, as regards correlation to the west, in the Skehana area, they may be equivalent either to the upper portion of the Woodview Sandstone or to the thin band of shales which occurs between the Woodview Sandstone and the Skehana seam. It is not possible, on account of the great lateral variation of the beds, to attain any greater precision than this; but, as regards restoring the conditions under which these remarkable animals existed, we can with fair confidence make the following statement:—

Just before the establishment of the conditions which made the existence of the Estherian fauna possible, Ardra was on the edge of a sand-bank or delta which lay to the north-west, while to the east and south at no great distance lay open sea or estuary. Sometimes the sand was pushed east over the site, and sometimes the sea with the organisms, whatever they were, that caused the flecking, crept west. Then the sand finally failed to reach the site, the sea no longer encroached, and the mud-stones in which the fossils are found were laid down. At this period the sand-bank was probably still in progress of formation a short distance to the north-west, and the sea with its marine fauna lay to the south and east. Finally, the muddy conditions led up to the growth of the Skehana coal-seam. This seam attains its maximum development in the area to the north-west, and appears to be thinning somewhat at Ardra; but the horizon on which it lies is marked by a thin coal-rod extending far into the previously marine area to the south and west.

Although shells referable to some small species of Estheria (using the term in the palaeontological sense) are found at various horizons in the strata of the Kilkenny coalfield, yet there is no known case of a fauna equal in abundance and state of preservation to that of the Ardra borehole. One might

therefore conjecture that some special conditions favourable to its development were present at this spot, and the stratigraphical relations indicate that some such special conditions might have been produced as a consequence of the recent retreat of the sea and the development of fresh or possibly brackish water lagoons along the margin of the sand-bank.

III.—Summary of Previously Described Genera.

The order Conchostraca is divided into two families—the Limnadiidae and the Limnetidae.

Limnetis, the sole genus of the Limnetidae, is simpler in structure, particularly as regards the tail-segment and the reduced number of trunk-limbs, than the genera of the Limnadiidae. It differs from all these, with the exception of Cyclestheria, of which the position is uncertain, in the possession of only one pair of claspers in the male.

Cyclestheria resembles Limnetis in this respect, but in others is much more closely allied to Estheria and the other Limnadiidae.

The descriptions of the living Conchostracan genera are scattered through a variety of publications. In order to give an idea of the relationships of the fossils described, it has been thought advisable to include here the following synopsis of generic characters:—

I.—Limnadia:

(1) Shell large, oval, greatly compressed, very thin, smooth, with about 18 lines of growth.
(2) Head small, but furnished with haft-organ.
(3) First pair of antennae, or antennules, comparatively short.
(4) Second pair of antennae with inner ramus longer than outer, but both divided into numerous laminar joints, clothed on inner edge with long natatory bristles, on outer with short spines.
(5) About 24 pairs of trunk-limbs.
(6) In males two anterior pairs of trunk-limbs are modified as clasping organs.
(7) Caudal lamellae drawn out below to a sharp, not claw-like, angle, and finely dentated posteriorly.

II.—Eulimnadia:

(1) Shell narrow oblong, with 4–5 lines of growth.
(2) Head similar to Limnadia. Haft-organ present.
(3 & 4) Antennae do not differ essentially from those of Limnadia, but the gills are larger.
(5) About 18 pairs of trunk-limbs.
(6) In males two anterior pairs of trunk-limbs are modified as clasping organs.
(7) Telson similar to that of Limnadia.

Remarks.—Eulimnadia is closely allied to Limnadia, the only essential difference being that the species of Eulimnadia, like those of the genus Estheria, are bi-sexual, while males of the genus Limnadia have not yet been found.

III.—LIMNADELLA :

(1) Cypridoid shell, i.e., flattened along the ventral margin.
(2) Head furnished with one eye only.
(3 & 4) Antennae sub-equal, and joints provided with numerous spines.
(5) Twenty-four pairs of trunk-limbs.
(6) In males two anterior pairs of trunk-limbs are modified as clasping organs.
(7) Large telson.

Remarks.—This genus differs from Limnadia in having its antennae almost equal, while it differs from Estheria in the fact that the antennal segments bear numerous spines, while in Estheria these segments have only one spine each.

IV.—ESTHERIA :

(1) Shell oval, more or less globose, with 18–22 lines of growth.
(2) Head very large. No haft-organ.
(3) First antenna or antennule remarkably long and jointed.
(4) Second antenna with a stout, multiarticulate scape, and sub-equal flagellae, which extend well beyond the edge of the shell ; 15–20 antennal joints.
(5) About 20 pairs of trunk-limbs.
(6) In males two anterior pairs of trunk-limbs are modified as clasping organs.
(7) Telson with finely dentated caudal lamellae and claw-like furcae.

V.—CYCLESTHERIA :

(1) Shell cyclas-like, inequilateral, with few lines of growth.
(2) Only one eye. No haft-organ.
(3) First antenna or antennule simple, cylindrical.
(4) Second antenna rather stout with strong recurved spines along the upper branch and part of the scape.
(5) Sixteen pairs of legs.
(6) In male only first pair of trunk-limbs modified as clasping organs.
(7) Caudal plate short and broad, with two slender mobile claws at tip, with great development of very strong and unguiform dorsal spines.

VI.—LIMNADOPSIS :

(1) Shell ovate, compressed, very thin, 25 mm. long, being very large for the Conchostraca. Union between the two valves extending all along the dorsal line, which is raised into a much-compressed, spined keel. Lines of growth well marked.
(2) Haft-organ present.
(3) First antenna or antennule small.
(4) Second antenna stout, multiarticulate.

Remarks.—Limnadopsis is Estherian in character, but distinguished from Estheria by the presence of a haft-organ, and from Limnadia and the other Limnadiidae by the spinous processes on the carapace.

VII.—LEPTESTHERIA :

(1) Shell much compressed, oblong in form, with the umbones very small and placed far in front, dorsal edge straight, ventral slightly curved, both extremities rounded. Valves thin, pellucid, with the lines of growth rather slight, not ridge-like.

VII.—Leptestheria—*continued* :

(2) No haft-organ. Rostrum tipped with a slender and apparently mobile spine.
(3) First antennae Estheria-like.
(4) Second antennae Estheria-like.
(5) Number of pairs of legs comparable to Estheria.
(6) In males two pairs of claspers. Hand very complicated. Peculiar transformation of the upper lappets of the exopodites in the 10th and 11th pairs of branchial legs in the female to sausage-like appendages—somewhat resembling those found in Limnetis.
(7) Caudal plate but slightly deflexed, and without any spines above the caudal setae. Posterior segments of the trunk in neither sex with dorsal processes, but having the posterior edge minutely spinous.

VIII.—Limnetis :

(1) Carapace nearly spherical, smooth, without distinct beaks or umbones.
(2) Head very large ; the front region bearing the eyes enormous and produced into a large rostrum-pointed in female, abruptly truncated in male. Eyes small.
(3) First antenna minute, slightly elbowed, with indications of three joints.
(4) Second antenna, with scape or base rather short. Flagellae short, scarcely longer than scape, but with remarkably long setae.
(5) Ten to twelve pairs of trunk-limbs, upper lappets of the exopodites of the ninth and tenth pairs in the female transformed into cylindrical cords bent at the top.
(6) In male only first pair of trunk-limbs modified as clasping organs.
(7) Caudal segment blunt, without dentated lamellae or furcae.

IV.—Description of the Genus Limnestheria.

Of the material obtained from the above-described horizon in the Arcadia boreholes twenty-four specimens were available, showing body-parts of sufficient similarity to be considered referable to a single genus. All the appendages observed are certainly Estherian in character, and it would be possible to consider the fossils as belonging to the genus Estheria were it not for the presence of a single distinguishing character of some importance. Claspers were present in six of the specimens, which were thus shown to be males, and in each of these six there was only a single pair. That the second pair, which are characteristic of Estheria, could have been present and unobserved is rendered very improbable from the perfect state of preservation of the pair seen. It is necessary, therefore, to set up a new genus for the reception of these fossils :—

LIMNESTHERIA gen. nov.

Carapace bivalve, probably tumid. Valves oval, of the order of 5 mm. in length, with fringed or ciliated margin.

Second antenna stout, biramous ; scape strong and partially segmented. Flagellae very long, sub-equal, with 15–20 joints, setose. Second antenna very similar to that of Estheria.

Mandibles sickle-shaped, without palps.

Trunk-limbs numerous, apparently comparable to those in Estheria. In males only one pair of trunk-limbs modified as claspers.

Telson Estherian in type ; broad caudal plate, with two dentated lamellae, terminating in two strong curved spines. Caudal furcae claw-like.

Remarks.—The essential feature of this genus is the association of Estherian characters in general with a single pair of claspers in the male. The genus Cyclestheria has this character, but appears to be so distinctive in other features, such as details of structure of antennae and telson and the circular shell, that it is impossible to place the present forms in it.

V.—Description of Type Species.

Limnestheria ardra sp. nov.

Shell.—As seen in outline (Plate XXIV, fig. 1), the shell is oval probably equi-valve, 5-6 mm. in length and 3 mm. high. The free edge of the valve is delicately ciliated.

The Body and its Appendages.—It is probable that in life the body could be completely withdrawn into the shell, as in so many of the living Conchostraca. This conclusion seems justified by the relative magnitude of the shell and body-parts (Plate XXIV, fig. 1).

In the following description the body will be divided into three regions—the head, the trunk, and the tail-segment.

The Head (Plate XXIV, figs. 1, 1a, 1c).—In living forms the head region bears three pairs of appendages—the antennulae or first pair of feelers, the antennae or second pair of feelers, and one pair of mandibles or biting jaws. The preoral region was not sufficiently well preserved to enable its details to be described.

In spite of careful search the antennulae were never found. It seems more than probable that they were present, and if so they must have been very simple in form, more of the nature of the antennulae of Limnadia, Eulimnadia, Cyclestheria and Limnadopsis than of those of Limnadella or Estheria.

Second Antennae (Plate XXIV, figs. 1 and 1c).—As is usual in members of this order, the second antennae are powerful, biramous, swimming and sensory organs. Each consists of a strong basal joint or scape (fig. 1c, sc.), the protopodite, showing imperfect segmentation, with which are articulated two many-jointed branches or rami. The two branches are practically equal in

length. The jointing in the upper branch or endopodite (r_2) was very difficult to trace in places, so that it is possible that this branch is composed of nineteen segments, whereas the eighteen segments of the lower branch or exopodite (r_1) were beautifully preserved and readily counted.

Many of the joints bore long bristles or setae (s), and it is clearly indicated that in life all the joints must have carried such setae, which were doubtless ciliated, thus serving to help the animals in swimming and to waft the plankton, on which these creatures feed, into their mouths.

Antennæ of other specimens, as those figured on Plate XXIV, fig. 2, and text-fig. 5A, show the presence of short stout spines on the upper side of the organ (Plate XXIV, fig. 2a sp.). Thus not only in general appearance, but also in details of structure, the antenna of Limnestheria is remarkably similar to the antenna of the living Estheria. The beautiful state of preservation of these delicate biramous organs first attracted the attention of one of the officers of the Geological Survey to this interesting appendage material.

Mandibles (Plate XXIV, fig. 1).—In this specimen the mandibles were not well preserved, but the impression of one (md.) showed distinctly near the head region and above the antennæ. The mandible is simple, oval or sickle-shaped, and presumably strongly chitinised, without any evidence of palps. It is articulated to the head by a triangular base.

Mandibles were found in at least five other specimens, and are seen in figures 2B, 5A, Plate XXIV, fig. 1, and Plate XXV, figs. 1, 2 & 4.

The Trunk (Plate XXIV, fig. 1).—The segmentation of the body is not well preserved, so that we cannot say of how many parts it is composed; [illegible] type the segmentation could be made out, though poorly, as is indicated on Plate XXV, fig. 1. The dorsal margin of each segment, at least in the posterior region, is produced into a backwardly directed keel-shaped process, which probably carried spines (Plate XXIV, fig. 1; Plate XXV, fig. 6). Similar keeled prolongations of the segments are depicted by Packard in his engraving of Estheria morsei (Packard),[1] and they are also doubtless comparable to the lamellar dorsal processes borne by the eight posterior segments in Cyclestheria hislopi,[2] and, like these latter, may aid in retaining the eggs within the shell (cf. also text-figs. 1A, 2A, Plate XXV, fig. 6).

[1] A. S. Packard, Jr.: A Monograph of the Phyllopod Crustacea of North America, with remarks on the order Phyllocarida. U.S. Geol. Surv. Wyoming and Idaho, 1878. Part I.

[2] G. O. Sars: On Cyclestheria hislopi (Baird), a new generic type of Bivalve Phyllopoda. Forh. Vidensk.-selsk. i. Kristiania, 1887.

The Limbs of the Trunk.—The delicate foliaceous appendages, the branchial feet, cannot be studied, as they only occur as very much crushed impressions, though three of them were indicated on specimen 13, fig. 5b. But the strongly chitinized clasper, into which three segments of the first trunk-limb have been modified in the male, is well adapted for preservation, and has been studied in three of these specimens.

First pair of Trunk-Limbs (Claspers) in Male (Plate XXIV).—In all the material examined, six specimens were males, showing these highly modified trunk-limbs. There were never more than two claws found ; therefore, it may be asserted with confidence that, as in the genera Limnetis and Cyclestheria, only the first pair of trunk-limbs are modified as clasping organs. This "hand" or clasper is formed by the three last segments (4th, 5th, & 6th) of the normal trunk-limb. The 4th segment (b.) is broad, sub-triangular in shape, and is projected on its inner margin into a rounded lobe, which carries two rows of strong setae—the "comb" (c.). The thumb-like movable process which in living genera usually arises from the distal end of this joint (Plate XXIV, figs. 3 and 4, p.) was not seen on specimen 1, but is represented in specimen 2 by a small triangular, setiferous appendage (Plate XXIV, fig. 2b, p.). The 5th segment is a strong curved claw (cl.), bearing at its tip nine small setae, which probably represent the basal portions of long, slender bristles, similar to those borne in this position by the claw of Cyclestheria hislopi. One long bristle occurs near the tip of the claw, and a row of seven small setae near its base. The last or 6th segment—the "forefinger" (f.)—has the form of a slender appendage and shows no trace of setae.

The remarkable similarity of the clasper of Limnestheria ardra to that of Estheria is seen by comparing Plate XXIV, fig. 5, with figs. 3 and 4, which represent the claspers of two species figured by Packard.

The Telson (Plate XXIV, fig. 1a).—The telson or tail is the last abdominal segment. It consists of a broad, somewhat compressed plate (pl.) of approximately rectangular form, bearing terminally two claw-like appendages—the caudal furcae (c.f.). The ventral edge is smooth, gently curved and prolonged posteriorly into two curved denticles (d.). The dorsal edge is produced into two lamellae (l.), each bearing a row of small bristles, the terminations of which have not been preserved in this specimen, but which may be presumed to have existed (see Plate XXV, figs. 5 and 6). Each lamella terminates in a stout, strongly recurved spine—the caudal spine—(c.sp.). Many telsons were preserved, and, besides that of the type-specimen on Plate XXIV, those of five other specimens are sketched on Plate XXV figs. 2a, 3, 5, 6, 7).

The essential structure of all these telsons is the same, but they differ

somewhat in form, and to an extent that can hardly be ascribed to the different disposition of the animal when it was buried in the mud. At first sight the telson of specimen 4 (Plate XXV, figs. 2 and 2a) seems to differ from that of the type almost sufficiently to warrant separation into another species; but, as no other observed variation is as marked as this, this procedure hardly seems justified.

VI.—Notes on the Specimens.

In preparing the foregoing descriptions of the genus and type species, attention has only been paid to such parts as are well preserved and easily observable in the selected specimens. When we come, however, to consider the remainder of the available material, which is inferior in point of preservation, we find ourselves on more doubtful ground. The visibility falls off in some cases to such an extent that the mere changing of the power of the microscope or the direction of the illumination endows an organ with a wholly different aspect. Under these circumstances it has seemed inadvisable to lay any great stress on the differences between individual specimens.

Certain individuals do show a distinct variation, which is perhaps most marked in the case of the telson. Thus the animal figured in Plate XXV figs. 2 and 2a, has caudal furcae of unusual shape, lacking the curvature characteristic of those of the type specimen. These straight furcae were also apparent in specimen 1 (text-fig. 5b), but in this case the preservation was very poor, and the specimen small and possibly immature. It should be noted also that in the specimens with straight furcae the caudal spines are less erect than in those with curved furcae. The shape of the mandible was very different in that (though when associated with these straight furcae, this may be only a sex-character). Plate XXV fig. 2 than in the more normal specimens (Plate XXIV, fig. 1; Plate XXV, fig. 1, and text-fig 5a), in the absence of more information and further specimens it seems more than rash to claim a specific significance for these variations.

For [illegible] material, a list is appended of the existing specimens, with the number attached to them :—

Specimen 1.—[illegible] figured Plate XXIV, figs. 1, 1a, 1b, 1c. Depth in bore, about 830 feet.

Specimen 2.—Good antennae and claw of one clasper, ♂ : figured Plate XXIV figs. 2, 2a, 2b. Depth in bore, 833 feet. Good "Estherian" shells, including one large one (about 25 mm. long), not distinguishable from the modern Lynnadopsis, were found on this slab of rock.

Specimen 3.—Impression of whole animal, ♂ ; figured on Plate XXV, figs. 1 and 7. In excellent preservation. Two clasper claws found lying on antennae, and impressions of claspers displaced above specimen, probably belonging to another individual. Outline of mandible and telson shown well, also imperfectly the segmentation of body. Depth in bore, 830 feet.

Specimen 4.—Antennae, telson, and mandible ; figured in Plate XXV, figs. 2 and 2a. No claspers; possibly female. Much-crushed body impression. Telson with straight caudal furcae. Outline of carapace valves some distance from specimen. Depth in bore, about 830 feet. Same horizon as specimen 1.

Specimen 5.—Outline of two carapace valves and antennae spread apart, figured in text-fig. 2A, and telson on Plate XXV, fig. 3. Poor telson outline, but caudal furcae straighter than in type. No claspers. Depth in bore, 834 feet.

Specimen 6.—Outline of two carapace valves and antennae spread out, figured in text-fig. 2B and Plate XXV, fig. 4. Good outline of mandible seen in position near base of antennae. Articulation in scape of antenna very oblique. Depth in bore, 830–835 feet.

Specimen 7.—Outline very similar to specimen 3. Impression of the whole animal and outlines of two carapace valves. Antennae beautifully preserved; two claspers much displaced; much-crushed body-parts ; telson rather poor. Depth in bore, 830 feet. From same slab as specimen 3.

Specimen 8.—Outline of two carapace valves spread apart, ♂ ; antennae rather poor ; well-preserved telson and dorsal processes on posterior segments much-crushed body impression ; two clasper claws. Figured in text-fig. 1B. Telson figured on Plate XXV, fig. 6. Depth in bore, about 830 feet. From same horizon as specimens 1, 4, 13, and 19.

Specimen 9.—Only antennae and partial outline of valves. Poor. Not sketched. About 830 feet in bore. From same horizon as 1, 4, and 8.

Specimen 10.—Large shell (8·5 mm. long), with lines of growth, punctate surface, and associated antennae. Figured in text-fig. 4. Depth in bore, 833 feet.

Specimen 11.—Outline of valves of carapace and antennae spread apart. Figured in text-fig. 1A. Depth in bore, 827 feet.

Specimen 12.—Outline of two carapace valves overlying each other ; antennae and one mandible. Figured in text-fig. 5A. Depth in bore, 827 feet. From same horizon as specimen 11.

Specimen 13.—Outline of two carapace valves; antennae and telson poor. Caudal furcae straight. Indications of at least three of the phyllopodous limbs. Figured in text-fig. 5B. Depth in bore, about 830 feet. From same horizon as specimens 1, 4, 8, 19.

Specimen 14.—Outline of carapace valves and antennae spread apart. Similar to specimen 11 (fig. 1A). Depth in bore, 832 feet

Specimen 15.—Outline of one valve and antenna; poor. On same slab as specimen 14.

Specimen 16.—Outline of two carapace valves and antennae: poor. Depth in bore 832 feet.

Specimen 17.—Shell only: 1 mm. long. Identical with specimen 19. Depth in bore, 831 feet.

Specimen 18.—Outline of one carapace valve and one antenna. Antennal segments and hairs well shown. Depth in bore, 831 feet. From same horizon as specimen 17.

Specimen 19.—Shell (6·5 mm.) as sketched in text-fig 3, and, lying near it, much-crushed animal, with antennae, telson, etc., and outlines of two carapace valves. Depth in bore, about 830 feet. From same slab as specimens 1, 4, 8, 13.

Specimen 20.—Outline of carapace valves and crushed remains. Depth in bore, about 830 feet. On same slab as specimen 19.

Specimen 21.—Good shell impression (5·5 mm.), identical with specimens 19 and 17. Depth in bore, 830 feet.

Specimen 22.—Narrow Estherian shell, about 6 mm. Depth in bore, about 830 feet.

Specimen 23.—"Estherian" shells of approximately same type as specimen 19. Depth in bore, 827 feet.

VII.—Conclusion.

The cosmopolitan distribution of most of the Conchostracan genera has been said by Packard to indicate their high antiquity. The present fossil remains certainly support such a conclusion. They are essentially Estherian in character, differing only in the absence of a second pair of claspers in the male, which character allies them to Cyclestheria and Limnetis. Without claiming for them direct ancestry one can recognize in them something closer to the stem from which the divergent genera of the order originally sprang. One is forcibly struck, however, with the absence of any marked evolutionary development in the long interval since Carboniferous times. This may possibly be connected with their adaptation to a mode of life very clearly defined by stable physical conditions, and affording no outlet for elaboration of structure.

In how far the general principle followed by palaeontologists of reasoning from the habits and surroundings of a living form to those of a closely allied fossil can be applied to the case of the Conchostraca must as yet remain in the region of speculation. It might perhaps truly be argued that the appearance of animals in a certain region of specialised adaptation to peculiar conditions must imply the existence throughout geological history of similar conditions in which such a period they occur. This, however,

implies the assumption that the form of the animal is in some way an expression of its environment, or rather of the life-history conditioned by its environment; and in order that any such assumption could be made with confidence it would be necessary to demonstrate that such-and-such organ or character was an adaptation to the peculiar conditions. Zoological studies of the modern Conchostraca provide such a demonstration only in the case of certain characters, such as the winged eggs of Limnadia; and it cannot be claimed that even in the very remarkably preserved fossils now described any such specially significant characters have been recognized.

It is generally considered that confirmation of any such deduction is provided by convergent evidence in the associated fauna. The associated fauna in the present instance, however, embraces only some different genera and species of Conchostraca, and the confirmation derived from such is very limited. One is tempted, nevertheless, to put forward the suggestion that the occurrence of such a fauna in the Carboniferous would be more easily comprehensible under climatic conditions very different from those usually supposed to characterize this period.

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[EXPLANATION OF PLATES.

EXPLANATION OF PLATES.

PLATE XXIV.

Fig.

1. Limnestheria ardra: ♂; specimen 1, outline; × 10; *an*, antenna; *h*, hand or clasping organ (1st trunk-limb); *m*, mandible; *t*, telson.

1a. Telson of Limnestheria ardra; × 40; *s*, outline of shell; *pl*, plate; *l*, lamella; *d*, denticle; *c sp*, caudal spine; *cf*, caudal furca.

1b. Claspers of Limnestheria ardra; × 40; *b*, segment iv; *c*, comb; *cl*, claw (segment v); *f*, forefinger (segment vi).

1c. Antenna of Limnestheria ardra; × 20; *sc*, scape or protopodite; r_1, exopodite; r_2, endopodite; *s*, setae.

2. Antennae of specimen 2; × 10; *cl*, claw of one clasper.

2a. Antenna of specimen 2; × 26; *sc*, scape; *s*, setae; *sp*, spines.

2b. Clasper of specimen 2; × 70; *b*, segment iv; *cl*, claw (segment v); *p*, thumb.

3. Estheria morsei (clasper), much enlarged, after Packard; *b*, segment iv; *cl*, claw (segment v); *p*, thumb; *c*, comb; *f*, forefinger (segment vi).

4. Estheria mexicana (clasper), much enlarged, after Packard: lettering as in figure 3.

5. Limnestheria ardra (clasper); × 68; lettering as in figure 3.

PLATE XXV.

1. Limnestheria; Specimen 3; Outline; × 14; *an*, antenna; *m*, mandible; *cl*, claws of clasping organ; *h*, hand or clasping organ; *t*, telson.

2. Specimen 4; × 14; *an*, antenna; *m*, mandible; *t*, telson.

2a. Telson of specimen 4; × 40.

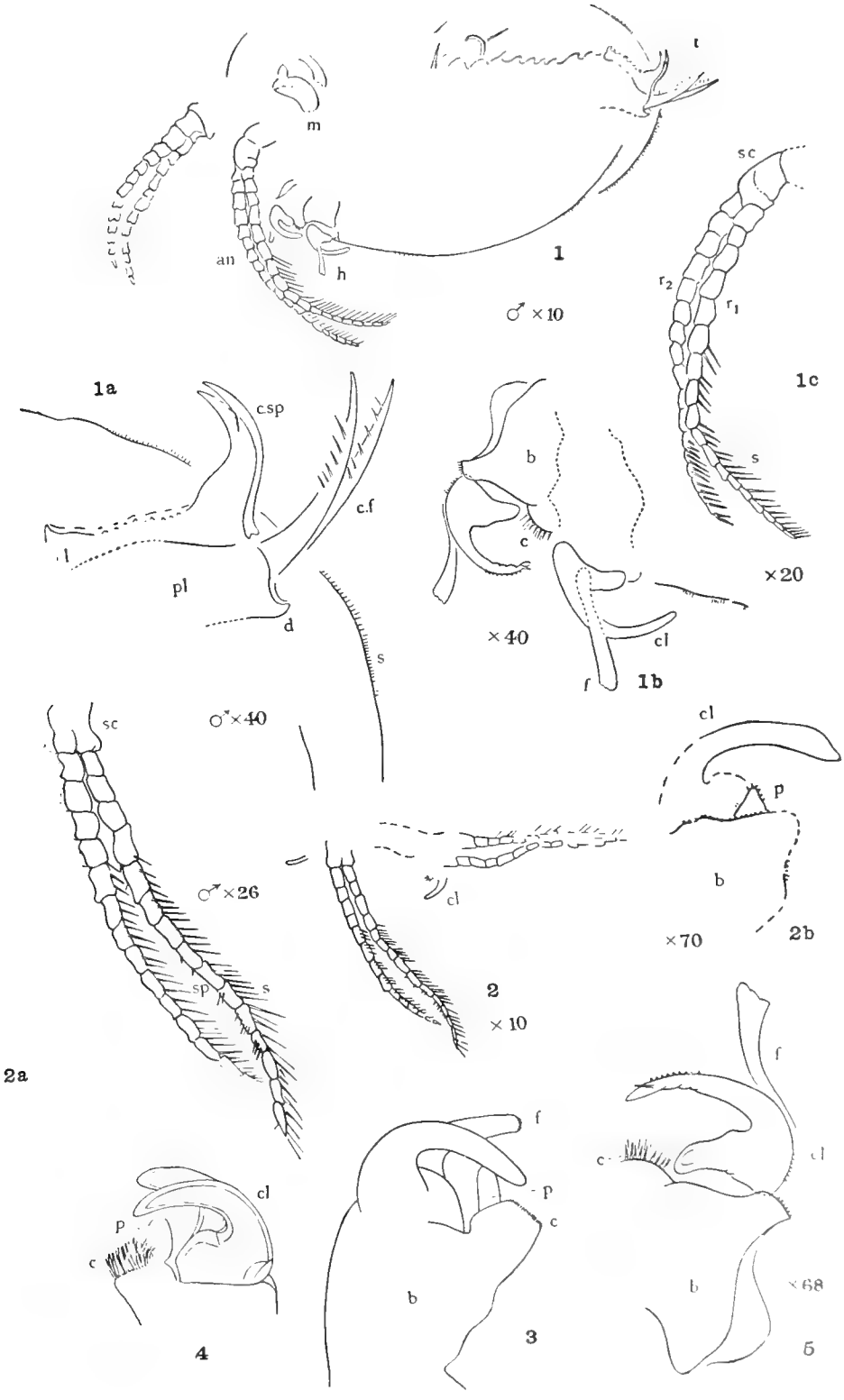
3. Telson of specimen 5; × 40 (see text-fig. 2A); *pl*, plate; *l*, lamella; *c sp*, caudal spine; *cf*, caudal furca.

4. Specimen 6. Base of antenna and mandible; × 40, showing relationship between positions of scape and mandible (see text-fig. 2B); *sc*, scape; *m*, mandible.

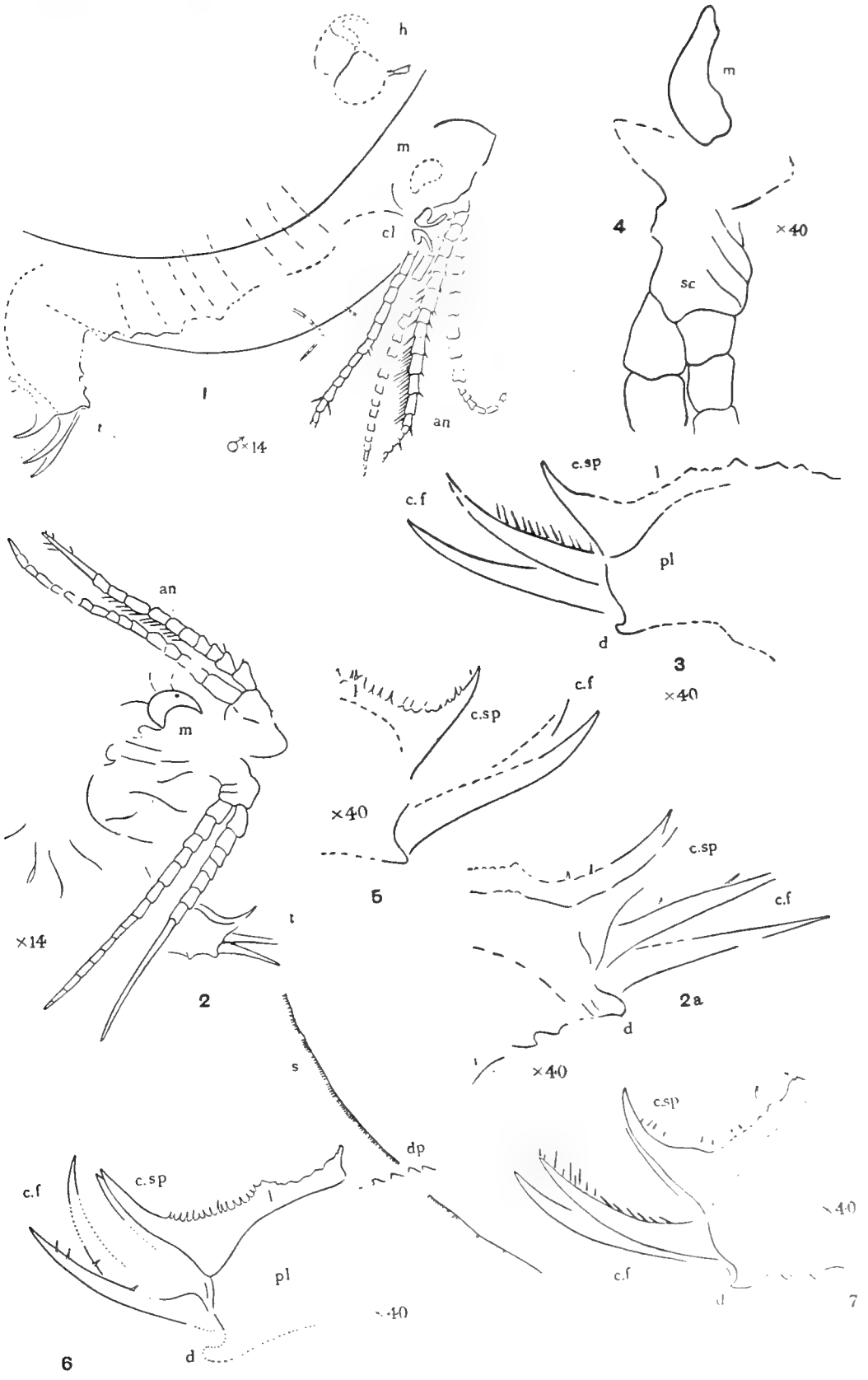
5. Specimen 7. Telson; × 40; *cf*, caudal furca; *c sp*, caudal spine.

6. Telson of specimen 8, showing shell outline and dorsal processes; × 40; *pl*, plate; *l*, lamella; *d*, denticle; *c sp*, caudal spine; *cf*, caudal furca; *dp*, dorsal processes; *s*, shell.

7. Telson of specimen 3; × 40; *d*, denticle; *c sp*, caudal spine; *cf*, caudal furca.



WRIGHT—LIMNESTHERIA.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XI.

THE FRESH-WATER SPONGES OF IRELAND.

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(*Being the Thirteenth Report from the Fauna and Flora Committee.*)

PLATES XXVI–XXIX.

Read MAY 10. Published SEPTEMBER 24, 1920.

INTRODUCTION.

SPONGES constitute the phylum Porifera, the lowest of the Metazoa or multicellular animals. They are a very isolated group, without any connecting links between them and other groups of multicellular animals.

The vast majority of sponges are marine, living at all depths, from between tide-marks to the farthest abysses of the oceans. One family only, the Spongillidae, live in fresh water, and certain species belonging even to this family have occasionally been found in brackish ponds and estuaries in different parts of the world.

Fresh-water sponges exhibit a considerable diversity of structure, and are divided into a large number of genera and species. Of these species, Ireland possesses only five, a contrast to the marine sponges found off our coasts, which are already known to number nearly two hundred different kinds.

Certain marine sponges, namely, the bath-sponge and some of its nearest allies, were known at an early period. There are several allusions to them in the literature of classical times. Aristotle realized that sponges belonged to the animal kingdom, but after his time opinions on the subject varied. Writing in the year 1824, Gray ("Zoological Journal," vol. i) summed up the views of the earlier naturalists. He writes:—"The true nature of these curious bodies has for a long while been an object of great doubt to all Naturalists, for we find that most of the *Ancient Natural Historians* apparently regarded them as animals . . . On the revival of learning . . . all those who would examine for themselves considered them as vegetables." Thus we see that during a long period sponges were considered by some writers to be animals, by others plants. As plants they were thought to be most nearly related to the fungi or to the algae. More often they were classed as Zoophyta, or "plant-animals," belonging neither to the animal nor to the

vegetable kingdom, but possessing a "third or middle nature," serving to connect the two. Or, as another authority writing in the year 1633 expressed it, they "are not wrought together of the froth of the sea as our Author affirmes, but rather of a nobler nature than plants, for they are said to have sence." They are therefore referred by the writer to the "Plant-animalia," that is, "such as are neither absolute plants nor yet living creatures, but participate of both." While yet another writer defines the Zoophyta, among which he classes sponges, as "having stems vegetating and changing into animals." Several authorities maintained that sponges were merely shelters built by worms or other animals for their own use, or were nests built by certain aquatic insects for the reception of their eggs.

During the eighteenth and early part of the nineteenth centuries naturalists still differed as to whether sponges should be regarded as plants or animals, and it was not until the middle of the latter century that their animal nature was definitely established.

The earliest references to the fresh-water sponges must be looked for in works on botany. The first mention of them was apparently made by John Ray in the first volume of his "Historia Plantarum," published in 1686. He describes a sponge from the River Yare under the title "Spongia ramosa fluviatilis Newtoni." From his description it is evidently a branching specimen of *Spongilla lacustris*. A few years later, in 1691, Leonard Plukenet in his "Phytographia" Part I. Plate 112, fig. 3, gives a clearly recognizable figure of *Spongilla lacustris* from the River Isis, near Oxford, under the description "Spongia fluviatilis anfractuosa perfragilis ramosissima nostras." The later references to the fresh water sponges in Ray's books are chiefly quotations from the two preceding works.

Linnaeus in his earlier writings classed the Spongillidae with the lower fungi under the name Lithophyta. Later on he introduced the names *Spongia lacustris* and *Spongia fluviatilis*. Although it is impossible to determine with accuracy what were the sponges referred to, these two specific names have become established and have long been applied to the two commonest European species, now named *Spongilla lacustris* and *Ephydatia fluviatilis*. These two species were apparently the only ones known for a considerable number of years, although they were described from time to time under different names.

In 1848-9 Carter published papers on the fresh-water sponges of the Island of Bombay, thus making known for the first time the occurrence of fresh-water sponges beyond the confines of Europe. In 1863 Bowerbank published his "Monograph of the Spongillidae" (11), adding to the previously known forms several new species from North and South America and one from Australia. Carter's paper on the known species of Spongilla followed

in 1881 (**14**), and Potts' important monograph in 1887 (**33**). It would be impossible to enumerate in this short survey even all the more important papers on the fresh-water sponges published about this period, but a complete and valuable list of the literature on the subject up to the year 1892 is given by Weltner (**51**).

During the last thirty years much work has been done on the structure, physiology, and development of the Spongillidae, while scientific exploration carried on during recent years in many parts of the globe has proved that fresh-water sponges may be found under suitable conditions throughout the world, and new species are being continually added to the number already known.

Fresh-water Sponges in Ireland.

Although the fact that fresh-water sponges occur in Ireland has been known for just one hundred years, and although systematic search has recently been made for them in many different parts of the country, only five species have so far been found. They are as follows :—*Spongilla* (*Euspongilla*) *lacustris* auct., *Spongilla* (*Eunapius*) *fragilis* Leidy, *Ephydatia fluviatilis* auct., *Ephydatia Müllcri* Lieberkühn, and *Heteromeyenia Ryderi* Potts.

Key to the Irish Spongillidae.

I. Gemmule-spicules rod-like (strongyla or oxea). Genus *Spongilla*.

1. Skeleton-spicules, smooth oxea; free microscleres present. Gemmules occurring singly, and provided with a pneumatic-coat of very minute cells (sub-genus Euspongilla). No foraminal tubule. *Spongilla lacustris.*
2. Skeleton-spicules, smooth oxea ; no free microscleres. Gemmules in a pavement-layer at base of sponge, and in small scattered groups, enclosed in both cases in a common covering of large polygonal cells (sub-genus Eunapius). Foraminal tubule present. *Spongilla fragilis.*

II. Gemmule-spicules amphidiscs of one kind, with equal discs which are serrated at the edge. Genus *Ephydatia*.

1. Skeleton-spicules typically smooth, but some microspined. Shaft of amphidisc longer than the diameter of the disc; disc not deeply serrated. Bubble-cells absent. *Ephydatia fluviatilis.*
2. Skeleton-spicules smooth and spined. Shaft of amphidisc shorter than the diameter of the disc; disc deeply serrated. Bubble-cells present. *Ephydatia Müllcri.*

III. Gemmule-spicules amphidiscs of two kinds. Genus *Heteromeyenia*.

1. Skeleton-spicules densely spined. Gemmule-spicules (*a*) long-shafted amphidiscs, the disc formed of several strong, recurved teeth united at the base; (*b*) short-shafted amphidiscs, with finely serrated edges to the discs. *Heteromeyenia Ryderi.*

Although the number of species is small, yet the fresh-water sponge-fauna of Ireland compares favourably with that of the countries lying nearest to her. England and Scotland together possess the same species. France has the following five: *Spongilla lacustris, S. fragilis, Ephydatia fluviatilis, E. Mulleri,* and *Trochospongilla horrida.* Six species occur in Germany, namely, the five that are found in France, with the addition of *Carterius Stepanowi*. Only about eight species are known to occur in the whole of Europe. One of these, *Heteromeyenia Ryderi*, as far as its European distribution is concerned, is limited to the extreme western outposts of the continent, while the gemmules only of another North American species, *Heteromeyenia repens*, have on one occasion been found in Europe, namely, in a pond in Galicia. Several species of doubtful value have been described from time to time, but the following are generally recognized as comprising the fresh-water sponge-fauna of Europe:—

Spongilla lacustris.
Spongilla fragilis.
Ephydatia fluviatilis.
Ephydatia Mulleri.
Heteromeyenia Ryderi.
Heteromeyenia repens.
Trochospongilla horrida.
Carterius Stepanowi.

Thus Europe is poor in number of species as compared with other parts of the world. At the present time North America is known to possess about twenty-eight species, the Amazon region of South America about twenty, the Continent of Africa over thirty, and India, including Burma, at least twenty-five species, and several varieties.

The geographical distribution of the fresh-water sponges found in Ireland is wide. *Heteromeyenia Ryderi* has the most restricted range, being known up to the present only from North America, Ireland, and Scotland. The remaining species occur throughout the entire Holarctic region. *E. Mulleri* appears to be confined to that region, where it extends through North America, Europe, and Northern Asia to Japan. *S. lacustris, S. fragilis,* and *E. fluviatilis* are represented by at least local races or varieties in other parts of the world. Thus *S. lacustris* is represented in India, *S. fragilis* occurs in South America, tropical Asia, and Australia, while forms of *E. fluviatilis* are found in tropical Asia, South Africa, and Australia.

Historical Account of Irish Fresh-water Sponges.

The following is a list, in chronological order, of the papers in which reference is made to the occurrence of fresh-water sponges in Ireland. Works which mention such sponges only in connexion with the problems of their geographical distribution are included in the general bibliography given at the end of this paper, to which the numbers in brackets refer.

List of References to Irish Fresh-water Sponges.

1822. Fleming, J.—The Philosophy of Zoology. Edinburgh.

1826. Grant, R. E.—On the Structure and Nature of the *Spongilla friabilis*. Edinburgh Philosophical Journal, xiv.

1836. Templeton, R.—A Catalogue of the Species of Annulose Animals and of Rayed Ones found in Ireland, as selected from the Papers of the late John Templeton, Esq., of Cranmore, with Localities, Descriptions, and Illustrations. Mag. Nat. History, ix.

1844. Thompson, W.—Report on the Fauna of Ireland. Div. Invertebrata. British Association Report for 1843.

1849. Allman, G. J.—On the Natural History, Structure, and Biological Status of the Fresh-water Sponges. [Summary of Lecture.] Ann. Report Dublin Nat. Hist. Soc. for 1848.

1856. Thompson, W.—The Natural History of Ireland, vol. iv. London.

1868. Wright, E. P.—Notes on Irish Sponges. Part I. A List of the Species. Proc. Roy. Irish Acad., x.

1874. Belfast Naturalists' Field Club: Guide to Belfast and the Adjacent Counties. [Fresh-water Sponges, p. 130.] Belfast.

1878. Guide to the County of Dublin. Prepared for the Meeting of the British Association. Part II. [Macalister, A.—Sponges, pp. 1, 2.] Dublin.

1882. Bowerbank, J. S.—A Monograph of the British Spongiadæ. Ray Soc., London, vol. iv, edited by Rev. A. M. Norman.

1893. Scharff, R. F.—*Spongilla fluviatilis* in the Barrow. Irish Naturalist, ii.

1893. Creighton, R. H.—*Spongilla lacustris* at Ballyshannon. Irish Naturalist, ii.

1895. Hanitsch, R.—American Fresh-water Sponges in Ireland. Nature, li, p. 511.

1895. Hanitsch, R.—The Fresh-water Sponges of Ireland, with remarks on the general distribution of the group. Irish Naturalist, iv.

1899. Scharff, R. F., and Carpenter, G. H.—Some Animals from the Macgillicuddy's Reeks. Irish Naturalist, viii.

1902. A Guide to Belfast and the Counties of Down and Antrim, prepared for the Meeting of the British Association by the Belfast Naturalists' Field Club. [Nichols, A. R.—Sponges, pp. 236-238.] Belfast.

1905. Stephens, Jane.—Note on Irish Fresh-water Sponges. Irish Naturalist, xiv.

1908. Handbook to the City of Dublin and the Surrounding District. Prepared for the Meeting of the British Association. [Stephens, J.—Sponges, pp. 213–215.] Dublin.

1912. Stephens, Jane.—Fresh-water Porifera of the Clare Island Survey. Proc. Roy. Irish Acad., xxxi, Part 60.

1914. Stephens, Jane.—[Note on Fresh-water Sponges.] Ann. Report and Proc. Belfast Naturalists' Field Club, ser. ii, vol. vii.

1915. Stephens, Jane.—[Occurrence of *Ephydatia fluviatilis* in the River Liffey.] Irish Naturalist, xxiv, p. 43.

1915. Stephens, Jane. [Note on Fresh-water Sponges.] Ann. Report and Proc. Belfast Nat. Field Club, ser. ii, vol. vii.

References in zoological literature to the occurrence of fresh-water sponges in Ireland are few, as can be seen from the foregoing list, and for the most part brief. Apparently the earliest allusion to Irish fresh-water sponges was made less than one hundred years ago by John Fleming in his work, "The Philosophy of Zoology," published in the year 1822. In the course of his description of the Alcyonaria he devotes a few lines to the sponges, and associates them with a "tribe" of the Alcyonaria represented by the genera Anthelia and Cornularia among others. The author says: "As nearly connected with this tribe in form and the condition of the coral, we may notice the curious natural family of Sponges, the polypi of which are unknown." The only genera mentioned are Spongia, Ephydatia, and Tethya. In a foot-note (vol. ii, p. 614) there is the following remark: "I have given a delineation of the *Ephydatia candelium* from an Irish specimen, Plate V, f. 4." The figure referred to represents part of a specimen of *Spongilla lacustris*.

In his paper "On the Structure and Nature of *Spongilla friabilis*," published in 1826, Grant stated that "this animal or vegetable production is found spreading over rocks or other solid bodies, at the bottom of lakes, or on the sides of stagnant pools . . . in different parts of Great Britain and Ireland." The sponge referred to is probably *Ephydatia fluviatilis*.

Templeton's Catalogue, published in 1836, contains the following reference

to fresh-water sponges: "*S. friabilis* Esper. Found very common on the shores of the County Monaghan lakes, during the summer months," and "*S. pulvinata*, Lam., *Ephydatia canalium*, Fleming. Found adhering to the walls of the locks of the Lagan Canal." *S. friabilis* and *S. pulvinata* are usually assigned to *Ephydatia fluviatilis*, while *E. canalium* appears to be *Spongilla lacustris*, and probably both these species were seen by Templeton; but it is useless to inquire too closely into the limits of the species as understood by the older writers, and Templeton's specimens have apparently not been preserved.

William Thompson, in a list of invertebrates found in Ireland, gives *Spongilla fluviatilis* as occurring in the north and west of the country. A few years later Allman emphasized his belief that fresh-water sponges "ought to be viewed as Diatomaceous organisms," and that "the siliceous spicules of the Spongillae were in every respect the representatives of the siliceous frustules of the Diatomaceae." The following localities are given for *Spongilla lacustris*: the Lower Lake of Killarney and some of the lakes of Co. Wicklow.

Thompson, in his "Natural History of Ireland," quotes the earlier references to Irish fresh-water sponges, and gives some additional localities for *Ephydatia fluviatilis*. Under this species he mentions some specimens from a pond at Whitehouse, Co. Antrim, which seemed to be identical with the *Ephydatia canalium* figured by Fleming. This figure, as already stated, is taken from a specimen of *Spongilla lacustris*.

E. P. Wright in 1868 gives additional localities for *Spongilla lacustris*. Of *Ephydatia fluviatilis* he writes:—"To be found apparently in every suitable locality in Ireland. In Dublin very common in the canals, and of too frequent occurrence in the fresh-water pipes of the city."

In the Guides to the Belfast and Dublin districts, prepared in 1874 and 1878 respectively for the visits of the British Association, there are brief allusions to the fresh-water sponges. In the former, *Ephydatia fluviatilis* is recorded for the Lagan Canal (where it still flourishes); in the Guide to the Dublin district it is stated that *Spongilla lacustris* and *Ephydatia fluviatilis* abound, the former in Lough Bray, the latter in the Royal Canal and "elsewhere." It may be stated here that *Heteromeyenia Ryderi* Potts is the only species found on successive visits to both Upper and Lower Lough Bray in recent years.

Several Irish localities for fresh-water sponges are given in the fourth volume of Bowerbank's "Monograph of British Sponges." Dr. Battersby sent the author specimens from the "Lake of Killarney" and Caragh Lake. Some of these were named *Spongilla lacustris*, others *Spongilla Parfitti* (= *Ephydatia*

Müllcri. The former species was also found near Roundstone, Co. Galway. A number of preparations of Dr. Battersby's specimens are to be seen in the Bowerbank Collection of Sponges in the British Museum. Of these the slides of *Spongilla lacustris*, from the "Lake of Killarney," are correctly named. One preparation labelled *Spongilla Parfitti*, from the same locality, is almost certainly *Heteromeyenia Ryderi*; gemmule spicules are absent, but skeleton-spicules agree exactly with those of specimens recently collected in the neighbourhood of Killarney. A section of a sponge from Caragh Lake, also labelled *Spongilla Parfitti*, contains a number of gemmules; the gemmule spicules are very irregularly shaped, but the section is apparently taken from a specimen of *Ephydatia Mulleri*.

In the "Irish Naturalist" for 1893 Dr. Scharff records the finding of a specimen of *Ephydatia fluviatilis* in the River Barrow, and Dr. Creighton the finding of *Spongilla lacustris* in Columbkille Lough, Co. Donegal. The latter specimens were later on named *Tubella pennsylvanica* Potts, by Dr. Hanitsch, but eventually they proved to be *Heteromeyenia Ryderi* Potts.

About this time Dr. Scharff collected fresh-water sponges in several parts of Ireland, and sent them to Dr. Hanitsch for identification, with the result that the latter, after a preliminary notice in "Nature," published an extremely interesting paper in the "Irish Naturalist" in 1895 on the fresh-water sponges of Ireland, discussing the general distribution of the group, and reviewing the state of knowledge of the European *Spongillidae*. In this paper Dr. Hanitsch announced the discovery in Ireland of three species of fresh-water sponges up to that time known only in North America. These were *Heteromeyenia Ryderi* Potts; *Tubella pennsylvanica* Potts; and *Ephydatia crateriformis* Potts. The identification of the last-named was considered doubtful. The author also gave descriptions of three other species at that time known to occur in Ireland, namely, *Spongilla lacustris*, *Ephydatia fluviatilis* and *Ephydatia Mulleri*, adding a description of *Spongilla fragilis*, with the remark that the species was sure to be found some day in Ireland. That statement has since been justified by the discovery of the species in several parts of the country. With reference to *Heteromeyenia Ryderi*, *Tubella pennsylvanica*, and *Ephydatia crateriformis*, the first only has been found subsequently in Ireland. It proves to be the commonest species in the areas in which it occurs. The question of the other two species will be discussed later (p. 214). It must suffice for the present to state that the supposed specimens of these species proved to be *Heteromeyenia Ryderi*.

It has long been known that certain plants and invertebrates are common to the west of Ireland and to North America, and the attention of workers at the problems of geographical distribution was naturally attracted by the

discovery in Ireland of *Heteromeyenia Ryderi*, and, as was supposed at the time, of two other species with a similar distribution. We find, therefore, during the next few years that the chief references to Irish fresh-water sponges were made in connexion with the question of their distribution. Dr. Scharff in several of his books and papers (**35**, **36**, **37**) and Professor Carpenter (**13**) cite the distribution of these fresh-water sponges, along with that of certain other invertebrates and plants, in support of the theory of the existence of a former land-bridge between North America and Europe. Later on, when two of the three sponges were found in India, the species were naturally quoted as good examples of discontinuous distribution (**3**).

Two or three short notices giving additional Irish localities for some of the species bring us up to the commencement of the Clare Island Survey, when for the first time in this country a systematic search for fresh-water sponges was undertaken in a definite area, namely, in western Mayo and in the adjacent islands off the coast. In point of view of mere number of species, the result of the Survey was disappointing, only *Spongilla fragilis* being added to the list, while *Tubella pennsylvanica* and *Ephydatia crateriformis* had to be deleted. The chief points brought forward in the report may be briefly referred to. First, that sponges were fewer in number of species, and grew as a rule with less luxuriance in lakes on the limestone than in the fresh waters of the non-calcareous areas; and, secondly, that *Heteromeyenia Ryderi* was absent from the fresh waters of the limestone areas. It is satisfactory to state that these observations have been confirmed by work done subsequently in many parts of Ireland. Thirdly, it was found that *Heteromeyenia Ryderi* assumes different forms in lakes and rivers, which forms are closely analogous to the varieties of the species described from North America.

A few short notices giving additional localities for some of the species bring the list of references to Irish fresh-water sponges to a close.

The material on which the present paper is based has been collected for the most part by the present writer in different parts of Ireland during the past ten years. Many areas have been very thoroughly searched, but several parts of the country have been left almost untouched owing to various reasons—for instance, two or three unusually wet seasons which delayed the work, and, during the last few years, the increasing difficulties of travelling in Ireland for the purpose of collecting natural history specimens. In particular, the midlands have been neglected, and further work in parts of the north and in the south would add to our knowledge of the distribution of the various species.

The writer wishes to record her thanks to other workers who kindly helped by collecting specimens in different parts of the country, in particular to the following:—Messrs. D. C. Campbell, N. H. Foster, R. A. Phillips, R. Ll. Praeger, R. Welch, and Mr. and Mrs. A. W. Stelfox. Special mention should be made of the constant help given by the late Major H. Trevelyan, who on his many fishing expeditions to the counties of Donegal and Fermanagh undertook to search for fresh-water sponges, and who became a most enthusiastic collector. Thanks are also due to the Fauna and Flora Committee of the Royal Irish Academy for a grant which enabled the writer to collect in the more remote districts of south-west Cork and Kerry.

Supposed Occurrence of Trochospongilla pennsylvanica (Potts) and Spongilla crateriformis (Potts) in Ireland.

In addition to the discovery of *Heteromeyenia Ryderi* in Ireland, Dr. Hanitsch (**20**, **21**) announced the finding of two other species new to this country, namely, *Tubella pennsylvanica* from Columbkille Lough, Co. Donegal, and *Ephydatia crateriformis* from Park Lough, Hungry Hill, Co. Cork, the latter species being only named provisionally. Gemmules were not found in any of the specimens. No further trace of sponges belonging to these two species, now referred to the genera Trochospongilla and Spongilla respectively (**3**, p. 118 and p. 83), has been discovered in Ireland; but when once systematic field work was undertaken *Heteromeyenia Ryderi* was found in great abundance in different parts of the country, and its variability soon became recognized. As I have stated in a previous paper (**41**), it was impossible not to be struck with the agreement of Dr. Hanitsch's description of *Trochospongilla pennsylvanica* and *Spongilla crateriformis* with forms of *Heteromeyenia Ryderi* taken in different Irish localities. It was determined therefore as opportunity offered to obtain further material for examination from the lakes in which Dr. Hanitsch's specimens had been taken.

As already described (**41**), visits made to Columbkille Lough by the late Major Trevelyan and by the present writer on several occasions during the summer and autumn of 1911 resulted in the finding of a sponge which grew there in great abundance underneath the stones along the shores of the lake. Its skeleton-spicules agreed exactly with Hanitsch's description of the sponge he had called *Tubella pennsylvanica*, and with a preparation of one of his specimens now in the British Museum. Hundreds of specimens were collected without finding any gemmules, but finally a few gemmule-bearing sponges were taken in the month of October, and these proved that the sponge was *Heteromeyenia Ryderi*.

The description of the fragments of sponge doubtfully ascribed by Hanitsch to *E. crateriformis* agreed so well with poorly developed specimens of *Heteromeyenia Ryderi* (41, p. 6) that a visit was paid to Park Lough in August, 1917, in the hope of definitely settling the question of the identity of the sponge from this locality. Park Lough is a very small lake, lying on the lower south-western slopes of Hungry Hill, at an altitude of 300 feet. It has boggy shores, with steep turf banks at the western end, and a few stones lie on the soft peaty bottom at the eastern end. The lake thus does not present favourable conditions for the growth of sponges; but a thorough search along its shores resulted in the finding of a fair number of small specimens. These were growing for the most part on the under surface of stones that were laid loosely, one on top of the other, stretching out from the shore to form a sort of rough pier under the water. Three or four specimens were found on the stems and roots of water-plants. Similar specimens were found a little way down the stream, draining the lake, where a stony bottom afforded some suitable ground for sponges. All the specimens obtained were very soft in texture, yellowish in colour, and tended to be slightly lobed; in other words, externally they agreed exactly with poorly developed specimens of *Heteromeyenia Ryderi*, such as one would expect in an unfavourable habitat. About this time a minute fragment of the original material, collected in Park Lough by Dr. Scharff in May, 1893, was discovered among the sponges preserved in the National Museum. A comparison of the spicules of this sponge with those of the specimens recently collected proved that they all agreed exactly with Hanitsch's description of his doubtful *E. crateriformis*. Fully developed gemmules were not present, but a few scattered amphidiscs were discovered which proved beyond doubt that the sponge was a form of *Heteromeyenia Ryderi* with slender spicules, such as occurs where the conditions are not favourable to a vigorous growth. In addition to the developing amphidiscs figured by Hanitsch (**21**, fig. 5), a very few mature amphidiscs of both kinds were found in the fragment collected in 1893.

Specimens of *Trochospongilla pennsylvanica* and *Spongilla crateriformis* from North America, identified by Potts, and a specimen of the latter species from India, were available for examination. In this connexion it is interesting to note that the two North American species which have to be deleted from the Irish list have, within recent years, been found in India (**3**).

The supposed occurrence of *Trochospongilla pennsylvanica* in Scotland may also, perhaps, be referred to in this place.

Some years ago Dr. Annandale (**2**) collected two species of sponges in Loch Baa, in the Island of Mull, Scotland. One of these was a form of

Spongilla lacustris, the other was named *Tubella pennsylvanica* Potts. An examination of one of Dr. Annandale's slides of the latter species in the British Museum showed that the sponge from which the preparation was made was undoubtedly the lake form of *Heteromeyenia Ryderi*. Unfortunately gemmules were not present, and I have not succeeded in procuring any further specimens of the sponge from Scotland.

Habitat and General Distribution of Fresh-water Sponges in Ireland.

Fresh-water sponges occur throughout Ireland in lakes, ponds, rivers, and streams. They also occur in the canals, in old quarry-holes, and even in bog-drains. They are to be found in mountain tarns and streams up to a height of 2,200 feet, as well as in the largest lakes and rivers of the lowlands.

In this country fresh-water sponges usually grow on and under stones, but they also grow on water-plants, and, in lowland rivers, they have been found on the submerged roots of trees, such as the alder, and on rotting, submerged tree-stumps and branches. With regard to lakes, sponges are most abundant in those which have rocky or stony shores, or have at least a stretch of stone-strewn beach, but they also grow, though never luxuriantly, in lakes which are almost entirely surrounded by high banks of peat, and in which the water is deep-brown in colour from the peat. In these lakes on the bogs the sponges are occasionally found on the submerged stumps of the trees (for the most part Scotch Fir) that in former times grew in abundance in areas now covered by bogs and lakes. Sponges have even been seen growing on a sod of turf lying under water in a stream.

When the bottom consists of mud, the "chief enemy" of sponges, they grow raised above it on the stems of reeds or other water-plants, or on the stone-work and wood-work of the walls of mill-streams, canal locks, and other artificially constructed waterways.

Fresh-water sponges are occasionally found in brackish water in different parts of the world. So far they have not been found in brackish water in Ireland, although search has been specially made for them. For example, the tidal river which drains Furnace Lough, Co. Mayo, was carefully examined, but without success, as well as the southern end of the lake where the water is brackish. Sponges were abundant in fresh water at the northern end of the lake. On the other hand, a marine species of Polyzoa *Membranipora membranacea*, which establishes itself readily in brackish water, was found all along the river, in the southern part of the lake, and even in fresh water at the northern end, where it grew in company with *Ephydatia fluviatilis*.

Speaking generally, as long as there is a suitable substratum on which sponges can establish themselves, it is but seldom that one will return empty-handed from a search in any lake or river. But, as is always the case when this group of animals is concerned, the general rule has exceptions.

As far as my experience goes, sponges are not found in mountain streams in Ireland, unless there is a lake, however small, in the course of the stream. They do not occur in the streams flowing into the lake, but are to be found in the out-flowing stream or streams at a point immediately below the lake. Even when the sponges are few in number and small in size in the lake itself, just below it they often spread out in masses over the under surface of the larger stones, and if these upper stones are removed they are to be seen carpeting a lower layer of stones in the bed of the stream. The species found in such situations are *Heteromeyenia Ryderi* and, more rarely, *Spongilla lacustris*. If the mountain stream is small, the sponges appear to die out again further down its course, or at least they do not occur in such abundance.[1]

In lower-lying country sponges are found in the larger streams and rivers whose course does not pass through a lake. In this case they do not appear to grow very near its source. Probably it is owing to an insufficient food supply in a river near its source, and in a mountain stream, unless there is a lake in its course to act as a sort of reservoir, that sponges are not found in these situations.

Sometimes sponges cannot be found when shore-collecting in lakes which appear to be eminently suited to their growth, possessing, for example, clean stone-strewn beaches and clear water. No reason can be assigned to account for their absence. But it is possible in some cases after a very dry summer, when the water-level is unusually low, and the sponges are killed along a wide strip of shore, which is thus exposed, that it may take some time for them to reach again, at least in their former numbers, to their usual level. For instance, Lough Gill was examined for sponges in July, 1914, and they were found growing in abundance on the metamorphic rocks in certain places, and in smaller numbers on the limestone along other parts of the shore (**43**). The water was exceptionally low that year, and dried sponges were seen on the stones well above the water-level. A visit to

[1] In this connexion it is interesting to quote a statement of Dr. Annandale's in a paper (**8**) received after the foregoing was written, in which he discusses the occurrence of sponges in mountain streams in India. He writes: "I have not yet found any sponge in a small mountain torrent such as those at Khandalla, in which food is probably deficient; but when these streams are dammed to form ponds in which aquatic vegetation grows up, sponges soon make their appearance."

the same places in July, 1916, resulted in the finding of a very few small specimens, in the course of three days' search, on the metamorphic rocks in the lake, while none was seen on the limestone. In the tropics, where gemmules are produced in such abundance at the approach of the dry season, a fresh growth of sponges is ensured when the water again reaches its winter level. With the occasional exceptions of *Ephydatia fluviatilis*, and in a less degree *Spongilla lacustris*, gemmules are not abundant in lake sponges in Ireland, so that there is not much chance of sponges which are left high and dry during an unusually rainless summer being reproduced *in situ* by their means. In this connexion it may be stated that, on the whole, gemmules are not produced in very great numbers by fresh-water sponges in Ireland, no doubt owing to the temperate climate. The river form of *Heteromeyenia Ryderi*, and sometimes *Ephydatia fluviatilis*, may give rise to a certain abundance of gemmules, but I have seen nothing in Irish specimens at all comparable to the masses of gemmules produced by sponges in the tropics. Dr. Annandale, who has such an extensive knowledge of the tropical Spongillidae, comments on the scarcity of gemmules in a collection of sponges from France and Switzerland examined by him (**4**, p. 393). His remark would apply perhaps even more forcibly to Irish specimens. Although not produced in extraordinary numbers, gemmules may be found apparently at almost any time of the year. Again, owing to our temperate climate, there would appear to be no particular need to produce them at any special season. They are, however, more abundant on the whole in the late summer and autumn.

I have never found sponges along the shores of lakes, such as Crotty's Lough in the Comeragh Mountains, or Lough Shimnagh in the Mourne Mountains, that are used as a water-supply for neighbouring towns and cities. This is, perhaps, to be accounted for by the rapid and frequent changes in the water-level in these lakes.

Sponges were not found in any of the lakes in the Mourne Mountains, although, apart from Lough Shimnagh, the lakes appeared suited to their growth. Sponges occur in such abundance and with such regularity in mountain tarns throughout Ireland that their apparent total absence from the Mournes is noteworthy.

The position in which sponges grow with the greatest luxuriance in this country is in a stream or river which drains a lake, and at a point a greater or less distance below the lake. This applies both to small mountain streams, as already described (p. 217), and to the large lowland rivers. For example, about half a mile below Lough Allen the pebbly bed of the River Shannon was found to be literally carpeted with growths of *Spongilla lacustris*. For

the most part the sponge sent up branches from an encrusting base, but unbranched, encrusting specimens were also common. Some miles down the river the sponge grew in fairly numerous isolated patches, but in nothing like the abundance in which it flourished at the first-mentioned point. The western shore of Lough Allen had been examined on the same and previous days, and proved to be almost bare of sponges, a few small specimens of *Spongilla lacustris* being found in a sheltered bay at the south-western end of the lake. The extreme scarcity of sponges in the lake thus contrasted strongly with their abundance in the river. Again, in County Sligo, the bed of the Drumcliff River, a hundred yards or so below Glencar Lough, was covered by a luxuriant growth of the same species, both branching and encrusting specimens again occurring. Glencar Lough itself yielded only a few small specimens. In non-calcareous areas *Heteromeyenia Ryderi* often grows in out-flowing streams, with stony bottoms, just below a lake both in the mountains and in low-lying localities. As this species grows hidden from the light, the uppermost layer of stones must be removed before the sponge can be seen practically covering the bed of the stream, as well as the lower surfaces of the top layer of stones.

I have not been able to find any reference in the literature of fresh-water sponges which would show that a similar rule with regard to the growth of sponges has been observed to hold good in other countries—namely, that sponges occur most luxuriantly in a stream or river that drains a lake, and at a spot a little distant below the lake. Edward Potts (**30**, p. 218) noticed, indeed, that *Spongilla lacustris* was particularly abundant at an outlet from the Fairmount Reservoir, "its stems forming a complete matting over many yards of surface," and Dr. Annandale (**6**, p. 65, p. 72) remarks of a certain species, *Nudospongilla mappa* Annandale, which occurs both in the Lake of Tiberias and in the River Jordan, that the largest specimens were taken from the Jordan near its exit from the lake. These are isolated instances, but they tend to show that the rule, as one would expect, probably holds good in other countries.

In the course of the Clare Island Survey two differences were noticed between the sponges in the lakes of the limestone area examined and those in the lakes lying on non-calcareous rocks (**41**). First, that sponges were less numerous, and, as a rule, of less luxuriant growth in the lakes on the limestone; and, secondly, that *Heteromeyenia Ryderi* was not found in any of the lakes on the limestone, but occurred in abundance in neighbouring lakes on non-calcareous rocks. These two points are further confirmed by the field-work since carried out in many other parts of Ireland.

With regard to the first point, the statement that sponges grow, as a

rule, less luxuriantly in lakes on the limestone still holds good, but it must be noticed that they sometimes grow in abundance on the limestone in rivers which drain a lake as just described. In the localities quoted, both the River Shannon and the Drumcliff River flow over the limestone at the spots indicated. But it must be remembered that the River Shannon at the place described drains Lough Allen, a large lake lying for the most part on the Lower Coal Measures, and that the bed of the river was largely made up of slaty fragments carried down from the Coal Measures. Glencar Lough, however, lies on the limestone.

The stones in many limestone lakes are covered with a thick, soft, calcareous deposit which seems to afford an unfavourable substratum for the growth of sponges, and which may be the cause of their scarcity in those lakes (**41**, p. 4). *Spongilla lacustris* and, more rarely, *Ephydatia fluviatilis* are able to establish themselves on such calcareous deposits, but they do not flourish on them.

As regards the second point, *Heteromeyenia Ryderi* has not been found growing on the limestone in any part of Ireland. It occurs on all sorts of non-calcareous rocks—granite, sandstone, mica-schist, basalt, and felstone. As suggested in a former paper (**41**, p. 4), the reason for the absence of *Heteromeyenia Ryderi* from limestone areas may, perhaps, be a physical one. The favourite habitat of the species, for the most part the only one in Ireland, is the under surface of stones. In lakes on non-calcareous rocks the stones are clean, and lie loosely on one another, thus affording shelter from the light and a free access of water to the sponge. In the lakes on the limestone the stones are often half-buried in mud, and in addition are often covered with a thick limy deposit. Such conditions would seem to be totally unfavourable to the growth of *Heteromeyenia Ryderi*. On the other hand, the species is equally absent from lakes and rivers where the limestone is cleaner, and affords freer under surfaces to the growth of sponges. *Heteromeyenia Ryderi* has not been found in the lakes which lie partly on the limestone and partly on non-calcareous rocks. The only exception to this statement, up to the present, is the finding of two small specimens of the species in the extreme north-western arm of Lough Corrib, which large lake lies for the most part on the limestone. But this north-western arm lies on non-calcareous rocks, and receives the drainage of the surrounding non-calcareous country; it is united only by a narrow channel with the main body of the lake, so that this part of Lough Corrib is to all intents a separate lake. The species was looked for in vain in the main body of the lake, which lies on the limestone.

As a general rule, *Spongilla lacustris* and *Heteromeyenia Ryderi* grow side

by side in lakes and rivers on non-calcareous rocks. If only one species is present, that species is almost always *Heteromeyenia Ryderi*, which is thus the most widely spread as well as the commonest sponge in the areas in which it grows. Very rarely three species are found growing together in any lake or river. On only two or three occasions were the two foregoing species found in company with a third, namely, with *Ephydatia fluviatilis*. For example, these three species were found together in Lough Nacorra and Moher Lough, in County Mayo. *Ephydatia fluviatilis*, however, varied in its appearance in these lakes, as it was found one year in abundance, leaving no trace of its presence in the following year. In limestone rivers and lakes *Spongilla lacustris* and *Ephydatia fluviatilis* sometimes occur together, but often only one or the other is present. The remaining species—*Spongilla fragilis* and *Ephydatia Müller*i—are too rare to admit of any general statement about their occurrence. The fact that rarely more than two out of the five species grow side by side at a given spot in Ireland is a contrast apparently to the mode of occurrence of fresh-water sponges in some other parts of Europe. For example, all five species known in France are met with at one spot in the River Saône, close to the fresh-water station recently established in the Côte d'Or (Topsent).

The same species of sponge may be found year after year in any given lake or river in this country. The only noticeable exception to this appears to be the occurrence of *Ephydatia fluviatilis* in the west of Ireland. This species varied in its appearance from year to year in a couple of lakes in County Mayo in which it had been found (**41**, p. 3). But it should be noted that *Ephydatia fluviatilis* is a rare species in the west, and is evidently not well established there.

To sum up the distribution of fresh-water sponges in Ireland—*Spongilla lacustris* occurs throughout the country in both limestone and non-limestone areas, both in low-lying lakes and rivers and in mountain tarns and streams.

Heteromeyenia Ryderi is only found in the fresh water of non-limestone districts, hence it occurs all round Ireland in the maritime counties which lie off the limestone, and is absent from the central limestone plain. It is commoner in mountain lakes and streams than the preceding species.

Ephydatia fluviatilis grows in both limestone and non-limestone areas. It is rare in the west, and has not yet been found in the south-west. It is quite common in the eastern counties from north to south. The species has not been taken in mountain tarns and streams. With the exception of Lough Nacorra, in County Mayo, which lies at 589 feet, it is only known from quite low-lying localities.

The remaining two species are very rare. *Spongilla fragilis* has been

taken in five widely separated localities, lying in the extreme north and south and in the west and north-west, while *Ephydatia Müllcri* has only been found so far in the River Erne, at Enniskillen; the River Tolka, in County Dublin; and in Caragh Lake, in County Kerry.

Family **SPONGILLIDAE**.

Spongilla (Euspongilla) lacustris auct. (Pl. XXVI, figs. 1, 2.)

This species is found all over Ireland, both in limestone and non-limestone districts. It flourishes in lakes and rivers and in the canals, and is the most widely spread species in Ireland, but in the areas where *Heteromeyenia Ryderi* occurs it is by no means the commonest; while in some of the eastern counties, in County Dublin for example, it is much rarer than *Ephydatia fluviatilis*.

Like all the fresh-water sponges in Ireland, *S. lacustris* usually grows on stones, either on the upper surface, when it is branching or massive, or on the under surface, when it forms thicker or thinner encrustations. It sometimes grows on water-plants, and has been found on the submerged roots of trees, such as the alder, growing on the banks of rivers, and on the stone-work of canal locks. Branching specimens, which are so typical of the species, are of much rarer occurrence in Ireland than encrusting ones.

As is usually the case with fresh-water sponges, *S. lacustris* is bright green when growing exposed to the light; when sheltered from the light it is greyish-white or pale yellowish. In lakes with very peaty shores it is sometimes a dull purplish-brown colour. An interesting variety of colour was exhibited by specimens growing in great profusion on the pebbly bed of the River Shannon, about half a mile below Lough Allen. Some of the sponges were a fairly bright, though not a vivid, green, but all were tinged more or less with a dark grey colour. Some were of a uniform dark grey externally and a pale yellowish green colour internally. One large specimen was ash-grey in colour, with most of its branches tipped with white, which rendered it very conspicuous even at some little distance. Another branching specimen was in part green, in part coloured similarly to the foregoing. These sponges were loaded with particles of silt brought down from the Coal Measures on which the greater part of Lough Allen lies.

S. lacustris is found commonly in mountain lakes and in their out-flowing streams, but it is comparatively rare in the higher mountain tarns, and has only been taken at three or four localities lying at an altitude of 1,000 feet or over. It was found in a little tarn at 2,200 feet on Mount Brandon in the Dingle peninsula, and in the stream draining the lake. It was also taken lower down the mountain in the stream draining Lough Nalacken (1,000 feet),

in Lough Boy, County Cork (1,800 feet), and in the out-flowing stream. In addition, spicules belonging to the species were found mixed with specimens of *Heteromeyenia Ryderi* from Lough Eagher, County Kerry (1,550 feet). *H. Ryderi*, which almost invariably accompanies *S. lacustris* in non-limestone districts, is much more commonly found in these mountain tarns ; but it is to be noted that *S. lacustris* alone was found in the little tarn at 2,200 feet on Mount Brandon, which is the highest altitude at which a fresh-water sponge has been found in Ireland.

In many of the low-lying lakes and rivers the growth of *S. lacustris* is vigorous, the skeleton spicules are robust and are united into thick fibres by a considerable quantity of spongin, and microscleres are present in the greatest abundance. For example, the species was seen spreading in masses several square feet in extent over a large boulder in Lough Feeagh, County Mayo. The pebbly bed of the River Shannon below Lough Allen was literally carpeted with branched and unbranched specimens. An equal profusion of specimens was seen in similar situations, while in the tree-bordered stretches of some of the rivers in the south-eastern part of the country the species may be seen coating the tangled roots of alders for yards along the banks.

The skeleton-spicules in these large specimens usually vary between 0·2–0·3 mm. in length, and have a maximum thickness of 0·013 mm., or more rarely 0·015 mm. The free microscleres are as a rule between 0·07–0·12 mm. in length, and have a maximum diameter of 0·008 mm. The gemmule-spicules vary between 0·05–0·13 mm. by 0·006–0·01 mm. (Pl. XXVI, fig. 1).

The gemmules themselves have no granular layer, or, if present, it is poorly developed. Very rarely it is well developed.

A great contrast to this vigorous growth of *S. lacustris* is presented by a certain form of the species which is characteristic of the mountain lakes, and also of the low-lying western lakes of the non-limestone areas (Pl. XXVI, fig. 2). This form occurs in small, more or less oval, patches on the under surface of stones. These patches are thicker towards the centre and thin out towards the edges. They are pale yellowish in colour, soft to the touch, and slightly hispid owing to the ends of the spicule-fibres projecting beyond the dermal surface. One or more small oscula are situated towards the centre of the sponge. This form of *S. lacustris* is easily distinguished at sight from the lake form of *Heteromeyenia Ryderi*, with which it is almost invariably associated, by its colour, its greater hispidity, and more particularly by its extreme softness.

The main skeleton-fibres are very slender, usually between 0·015–0·04 mm. in diameter. These are united at fairly long intervals by transverse fibres, consisting of a single spicule or of a bundle of a few spicules at right angles

to them. The spongin is very scanty, so that the entire skeleton is weak and is loosely held together. The whole appearance of the skeleton is thus a great contrast to that presented by robust forms of the species, in which both main and transverse fibres may reach a diameter of 0·15 mm., and may possess a considerable quantity of spongin closely binding the spicules.

The skeleton-spicules are long, but slender. They usually vary between 0·22–0·33 mm. in length, and have a maximum diameter of 0·01 mm. In some cases the maximum diameter is about 0·006 mm.

The free microscleres are also slender, being about 0·002–0·004 mm. in diameter. Usually they are few in number, but sometimes they are present in fair quantities.

Gemmules are present as a rule in considerable numbers, and may appear as early in the year as June. They are usually without a granular layer, or with this layer very feebly developed, and are of a clear pale yellow colour. They vary considerably in size, but do not appear, on the whole, to be smaller than in more typical specimens.

The gemmule-spicules seem to be absent from some specimens; in others they are present in scanty numbers. They measure, as a rule, between 0·008–0·13 mm. by 0·003–0·005 mm.

In lakes in which this small form grows there may sometimes be found small green incrusting specimens, perhaps only half an inch in height, on the sides of the stones. In one lake only, namely, in Lake Nacorra, County Mayo, were long erect branching green specimens found, about a foot in height. In these sponges the branches were very soft and slender. The spicules, too, were slender spikes resembling those of the small encrusting specimens growing under the stones.

The small encrusting form of *S. lacustris* is described at some length by Dr. Annandale (2) from specimens found by him on the under surface of stones in Loch Ba, in the Island of Mull, Scotland. It is considered by him to be possibly a distinct local race.

This phase of *S. lacustris*, so characteristic in its extreme form, is connected by every intermediate link with other specimens of *S. lacustris* which grow as more massive encrustations on the under surface of stones in lakes and streams on both calcareous and non-calcareous rocks. It has been traced from the lakes in which it grows down the streams that drain the lakes. As is the case with other species, *S. lacustris* grows most luxuriantly in these streams at a point a little distance below the lakes. Hence in such situations it extends in much larger patches on the under surface of stones; but there is no appreciable difference in the size or shape of the spicules, or in the relative abundance of the gemmule-spicules.

Girod (**18**) has noticed that in the mountain lakes of Auvergne the gemmules borne by *Spongilla lacustris* are devoid of a granular layer, and possess sometimes a few gemmule-spicules. In the rivers the gemmule-spicules increase in numbers until they form a compact covering of closely placed spicules (*S. lacustris*, var. *jordanensis*, Vejd.), and all intermediary stages have been seen in passing from the still waters of the mountain lakes to the currents of the River Allier and its tributaries. In Ireland the gemmules are without the granular coat, or have it very poorly developed in specimens in the low-lying lakes and rivers, as well as in those in the mountain tarns and streams. In one case only, namely, in a specimen from a stream in County Antrim, were gemmules seen with a well-developed granular coat in which the spicules were more or less vertically placed, exactly as figured by Vejdovsky (**49**, Pl. II, fig 13A). These gemmules were brown in colour, owing to the presence of a distinct chitinous coat outside the granular layer, as described by the same author (**49**, p. 17); and only a few of them were present, the majority of the gemmules being of the usual yellow colour, and with the granular layer poorly developed.

LOCALITIES.

KERRY.—L. Coomasaharn, Caragh L. and Caragh R., Middle Lake and Meeting of the Waters, Killarney; L. Avoonane and out-flowing stream, L. Cruttia (coll. R. Welch), stream from L. Nalacken (1,000 ft.) and lake at 2,200 ft. and its outlet on Mt. Brandon; L. Doon (1,000 ft.), L. Duff and out-flowing stream, L. Gall, L. Clogharee and out-flowing stream, L. Adoon, L. Eagher (1,550 ft.), Cloonee Lakes and Cloonee R., L. Inchiquin and out-flowing stream, L. Cummeenadillure and out-flowing stream.

CORK.—L. Avaul Little near Glengarriff, L. Boy (1,800 ft.) and out-flowing stream.

WATERFORD.—Ballyscanlan L., near Tramore.

GALWAY.—Near Roundstone (**12**), and many small lakes in the neighbourhood of Craigga More; L. Corrib, at many points along its shore; L. Bofin and out-flowing stream, Arderry L., L. Shindilla, Glendalough L., Nacoogarrow L. and out-flowing stream, Loughaureirin, Athry L., Derryclare L. and out-flowing stream, Owengowla R., Ballynahinch L. and Ballynahinch R., L. Maumwee, L. Rea (coll. R. A. Phillips).

CLARE.—L. Atorick (coll. by R. A. Phillips).

KILKENNY.—R. Nore at Inishtioge; R. Barrow at Graiguenamanagh.

CARLOW.—R. Barrow near Tinnahinch.

KING'S CO.—Near Portarlington (**39**).

KILDARE.—Canal between Sallins and Naas.

WICKLOW.—L. Dan, L. Tay, and Annamoe River.

DUBLIN.—Grand Canal, Royal Canal.

ROSCOMMON.—L. Key, R. Boyle, Oakport L., L. Arrow, R. Shannon, L. Gorinty.

MAYO.—Srahcens L. Achill Island; L. Pollagowly, L. Skahaghadrantan, L. Feeagh and out-flowing stream; L. Beltra, Clogher L. near Westport; L. Mallard, Drumminahaha L., Dambaduff L. and out-flowing stream, Carrowbeg L. near Newport (39); L. Islandeady, Castlebar L., L. Nacorra and out-flowing stream; Moher L., L. Cahasy (coll. J. N. Halbert), L. Nahaltora, Glencullin L., Doo L., Fin L., Tawnyard L., Lugaloughaun. For all the foregoing see (41).

SLIGO.—L. Gill (43), Glencar L., and Drumcliff R., L. Arrow, L. Derrymasallagh.

LEITRIM.—Glenade L., Glencar L., R. Shannon, L. Allen (S.-W. shore), Belhavel L.

CAVAN.—Bailey's Bridge and Baker's Bridge (coll. R. Welch), Killakeen (21), Upper and Lower L. Macnean; near Belturbet (coll. Miss Clifford).

MONAGHAN.—Mill-stream in Rossmore Castle Demesne (coll. A. W. Stelfox).

FERMANAGH.—L. Erne, at many points along the N. shore, and off the islands in the lake and Derrinty L., Meenaghmore L., and Garvay R. (coll. Major Trevelyan), R. Erne, Lower L. Macnean.

DONEGAL.—Rath L., Golagh L., L. Lee, Columbkille L. (coll. Major Trevelyan), Garty L. (coll. R. Welch), L. Aluing and outlet (coll. A. W. Stelfox), Doon L., L. Keltoris, Pound L., L. Fad near Narin, L. Birroge, L. Roshin, R. Erne, L. Unshin and out-flowing stream, Knader L., L. Inn, L. Fad near Moville.

ARMAGH.—Camlough R. (21).

DOWN.—Canal at Hillsborough (coll. N. H. Foster and A. W. Stelfox).

ANTRIM.—L. Neagh and stream at Woodburn (39), mountain lakes to the west of Carnlough, at about 1,000 ft. (coll. Major Trevelyan).

DERRY.—R. Bann, near Toome (coll. R. A. Phillips and A. W. Stelfox).

Spongilla (Eunapius) fragilis Leidy (Pl. XXVI, fig. 3).

This species, which has an almost world-wide distribution, is very rare in Ireland. Up to the present it has been found in five widely scattered localities in the north, west, and south of the country.

Spongilla fragilis was first found in Ireland in the course of the Clare Island Survey (41). It was discovered in the Owengarr River, which drains

Doo Lough, Co. Mayo; it occurred just below the lake in large patches, and in considerable abundance, and in fact has not since been found growing so luxuriantly in this country. In the following year a few small specimens were taken along the shores of Lough Erne by the late Major Trevelyan. Later on the species was discovered in Lough Fad (636 feet) on Fair Head, where it occurred in certain numbers, although not a trace of it was found in the neighbouring lakes on Fair Head, Lough-na-Cranog and Doo Lough, in both of which *Heteromeyenia Ryderi* abounded (**42**). A second visit was paid to Lough Fad two years later, when *Spongilla fragilis* was again seen. A few small specimens were found in the River Suir at Kilsheelan, Co. Tipperary; and, finally, one small specimen and an isolated patch of gemmules were discovered in the river flowing from Derryclare Lough, Co. Galway. A special search for further specimens was made at the last-named locality, but without success. A careful look-out has indeed always been kept for this species, with the foregoing small results.

Spongilla fragilis was found growing on the under surface of stones, in which situation it was of a pale yellowish colour. One small specimen growing on the side of a large stone was bright green.

The Irish specimens call for no special remark; they are quite typical of the species. The skeleton-spicules measure 0·18–0·25 mm. in length by 0·005–0·01 mm. The gemmule-spicules vary a good deal in length from one specimen to another; they are usually between 0·007–0·13 mm. in length by 0·003–0·006 mm.

Localities.

Tipperary.—R. Suir at Kilsheelan.

Galway.—Owenmore R. below Derryclare L.

Mayo.—Owengarr R. below Doo L. (**41**).

Fermanagh.—L. Erne off Caldragh Island and Screedan Rock, coll. Major Trevelyan (**41**).

Antrim.—L. Fad on Fair Head (**42**).

Ephydatia fluviatilis (auct.) (Pl. XXVII).

Ephydatia fluviatilis grows in the rivers, streams, and lakes of Ireland, both in limestone and in non-limestone districts, and is usually especially abundant in the canals. It is one of the rarer species in the west, and has not yet been taken anywhere in the south-west of the country, nor in Co. Donegal, although a considerable amount of collecting has been done in these areas. On the other hand, it is a common species in some of the eastern and south-eastern counties. In Co. Dublin, for example, it is by far

the commonest species, and indeed the only one found so far in the rivers of that county, the Liffey, Dodder, and Tolka, with the exception of *Ephydatia Mülleri*, found in the last-named on one occasion; but it has not yet been recorded for the neighbouring county of Wicklow. It has been found here and there throughout the midlands, where a more detailed search may prove it to be fairly common.

Like all the fresh-water sponges in Ireland, *E. fluviatilis* usually grows on stones. It may form thick encrustations or rounded cushion-like masses on the upper surfaces of the stones, or thinner crusts on their lower surfaces. The species is found, but more rarely, on the stems and leaves of water-plants, on the wood-work of the locks of canals, on rotting, submerged branches, or on the living roots of alder trees growing on the banks of rivers.

The sponge is dark green in colour when exposed to the light, and pale yellowish or greyish when growing in shaded places. In texture it varies considerably, one specimen may be hard, another quite soft. In the former case the sponge possesses robust skeleton-spicules; when the texture is very soft the spicules tend to be slender.

With the exception of its occurrence in Lough Nacorra in Co. Mayo, which lies at an altitude of 580 feet, *E. fluviatilis* has been found only in low-lying lakes and rivers in Ireland. Unlike *Spongilla lacustris* and *Heteromeyenia Ryderi* it has not been found in mountain tarns nor in their out-flowing streams. On the continent of Europe it appears also to prefer low-lying localities, but in Asia it has been taken at very high altitudes. In the Kumaon Lakes of the Western Himalayas, for example, it occurs at 4,000–6,400 feet (**9**), and in Issyk-Kul Lake in Turkestan at 5,300 feet (**55**).

As a rule, *E. fluviatilis* is vigorous in its growth, with well-developed skeleton-fibres and robust spicules, but in situations where the conditions would appear to be unfavourable it has been found of very small size, with very slender spicules loosely united into poorly developed weak fibres. In several lakes in the west of Ireland where the species does not appear to be well established the sponge, although growing in considerable quantities, possessed very slender spicules.

Green and actively growing specimens crowded with gemmules have been found throughout the year. Gemmules are apparently produced in far greater numbers in this species than in any other of the fresh-water sponges growing in Ireland, with the probable exception of *E. Mülleri*.

The skeleton-spicules of *E. fluviatilis* vary more than is perhaps generally recognised both in a single specimen and from one specimen to another. When it is stated that they vary considerably, that, for instance, spined as

well as smooth spicules occur, it may usually be taken that the writer does not distinguish between *E. fluviatilis* and the closely allied species *E. Mülleri*. For example, the majority of forms described by Potts (**33**) under *E. fluviatilis* are really *E. Mülleri*. Waller (**50**), writing on the varieties of *E. fluviatilis*, describes a series of English specimens. The first three specimens described, and their spicules figured, are typical *E. Mülleri*, with smooth and spined oxea and short amphidiscs. The remaining two are typical *E. fluviatilis*, with smooth oxea and longer amphidiscs. But the presence of minutely spined megascleres in *E. fluviatilis* (as distinguished from *E. Mülleri*) has been noted from time to time by several writers, and the occurrence of these spicules has sometimes been considered as an important character for the establishment of new varieties. Vejdovsky (**49**) alludes to small, slightly spined oxea in specimens of *E. fluviatilis* from Bohemia. Topsent (**48**) notes the occurrence of microspined oxea in a specimen from the River Vesle, and in the same paper quotes Traxler ("Foltdani Kozlöny," xxv, 1895) as having observed similar spicules in the species. He also describes (**48**) spined oxea as being abundant in his *E. fluviatilis* var. *syriaca*, from the River Barada, near Damascus and from Lake Huleh in Syria. Kirkpatrick (**22**) describes them in his *E. fluviatilis*, var. *capensis*, from South Africa, and Annandale (**7**, **9**), in his *E. fluviatilis*, sub-sp. *himalayensis*, from the Western Himalayas. Weltner (**54**) refers to the presence of microspined spicules in European examples of *E. fluviatilis*, and in specimens of the same species from Turkestan (**55**).

With regard to the specimens of *E. fluviatilis*, obtained in Ireland, a careful examination shows that almost every spicule-preparation contains a few, in most instances very few, microspined megascleres. In some cases, generally when the spicules are fairly thick, the spination is very obscure, so that the spicules, even under a high power of the microscope, appear to be merely roughened. In other cases, generally when the spicules are slender, the spines are well developed, and often quite numerous. The thicker microspined oxea of the varieties *syriaca* and *himalayensis*, just alluded to, and the more slender oxea, with minute, sharp spines, of the variety *capensis* are exactly similar to the spined oxea to be seen in various Irish specimens of *E. fluviatilis*. The slender spicules appear to have more tendency to be spined than the more robust ones. This is carried to an extreme, perhaps, for the species in interesting specimens from the pond in the Zoological Gardens, Dublin, in which many of the spicules, which are all rather slender, are thickly covered with fairly strong spines (Pl. XXVII, fig. 3). This peculiarity was not limited to one specimen, but was seen in all the samples collected in two successive years. The sponge was not abundant, and was

not of a vigorous growth. It was in the form of small, thin patches, growing chiefly on the under surface of stones. Numerous gemmules were present, which were furnished with slender, quite normal amphidiscs. The absence of bubble-cells was another character which prevented any confusion of these specimens with *E. Müllcri.*

In specimens of *E. fluviatilis* that may be regarded as typical the megascleres do not vary very much in size and shape. In such examples they are fairly stout, slightly curved, smooth oxea, tapering gradually to a sharp point at each end. Some have a very slight swelling in the centre of the shaft, and a very few are microspined (Pl. XXVII, fig. 1). It may be mentioned that Topsent (**48**) has already noted that there is often a slight swelling in the centre of the oxea of typical specimens found in France. In other specimens the oxea are similar to the foregoing, but are much more slender. They may be gradually pointed, as in specimens from Lough Beltra, Co. Mayo, or abruptly pointed, as in examples from Furnace Lough, in the same county (Pl. XXVII, fig. 2). Some of the oxea have a central swelling, and a number are very minutely spined. In specimens from the pond in the Zoological Gardens, Dublin, as already mentioned, the rather slender, spined spicules are very numerous (Pl. XXVII, fig. 3).

Again, other specimens of *E. fluviatilis* have typical megascleres, namely, fairly thick slightly curved, gradually pointed, smooth oxea; but among these is a considerable admixture of straight, or nearly straight, spicules which are shorter and thicker, and which taper abruptly to a point at either end. Some of the spicules have a slight central swelling, and a few are microspined (Pl. XXVII, fig. 6). These lead on to other specimens, in which the majority of the megascleres are short, very thick, nearly straight or slightly curved spicules, which taper abruptly, or more rarely gradually, at either end (Pl. XXVII, fig. 4). A few of these are microspined. When short thick spicules, either microspined or smooth, are formed to the complete or almost complete exclusion of the longer, more typical oxea, a peculiar form of *Ephydatia fluviatilis* results, which, for the sake of clearness, will be dealt with later on.

As well as the variations just described, abnormally formed spicules may be present in greater or less numbers in any specimen of *E. fluviatilis.* For example, the oxea may have one end rounded off, or even knobbed, or a series of swellings may be present along the shaft of the spicules (usually in slender, poorly developed spicules, and in young spicules), or the oxea may be reduced to a sphere, with or without one or two spike-like projections. Weltner (**53**) gives figures of some of these abnormalities.

With regard to the measurements of the foregoing spicules, the more

typical oxea measure between 0·24 and 0·47 mm. in length. They do not vary so much as this in a single specimen. Their most usual length is between 0·25 and 0·37 mm. Their maximum diameter is usually 0·013 mm.; but it varies from 0·008 to 0·015 mm. in different specimens. The shorter, thicker megascleres present in many specimens are, as a rule, between 0·22–0·26 mm. in length, and have a maximum diameter of 0·02 mm.

The gemmule-spicules of *E. fluviatilis* vary also to some extent. In the more typical specimens of the species the shaft of the amphidisc is smooth, or is so minutely spined that it looks merely roughened; or it may have one to several long, sharp spines projecting from it. The disc is indented; it is either divided into a number of fairly even, small teeth, or it is cut by several deeper indentations into broader sections, the outer edges of which are toothed. The teeth themselves may be very finely spined. In specimens which are not so robust in growth, and which possess rather slender megascleres, the amphidiscs are slender also, and there is more tendency for them to develop irregularities such as have been described and figured from time to time by various writers; for example, by Wierzejski (**56**), which writer notes in passing that the skeleton-spicules are slender in the specimens examined by him possessing irregularly shaped amphidiscs. The shaft, for instance, may be thickly covered with long spines, and may project as a sharp point beyond one or both discs. The discs themselves may be variously developed, and may often be merely an irregular bunch of strong spines projecting from the thickened ends of the shaft, or they may be reduced to one or two strong spines projecting at various angles, so that the spicule assumes an irregularly star-shaped form.

The amphidiscs are 0·025–0·027 mm. in length, and the diameter of the disc is 0·015–0·02 mm.

LOCALITIES.

WATERFORD.—Bally L. to the north of Dunmore.

TIPPERARY.—R. Suir at Kilsheelan, Anner R.

KILKENNY.—R. Barrow at Graiguenamanagh.

WEXFORD.—R. Bann near Camolin.

CARLOW.—R. Barrow near Tinnahinch.

GALWAY.—L. Corrib near Oughterard, Coole L. (coll. R. A. Phillips).

KING'S CO.—Lake in Birr Castle Demesne (coll. R. A. Phillips).

KILDARE.—R. Barrow at Mageney (**34**), Rye Water, at Leixlip.

DUBLIN.—R. Liffey, R. Dodder, Raheny ponds (**21**), stream at Edmondstown, Grand Canal, Royal Canal, R. Tolka, pond at Crumlin, pond in Zoological Gardens.

Mayo.—Furnace L., L. Beltra, Knappaghmore L., Moher L., L. Nacorra.

Sligo.—L. Gill (**43**), L Arrow, Dargan L. (coll. A. W. Stelfox).

Fermanagh.—L. Scolban and Garvay R. (coll. Major Trevelyan).

Down.—Stream at Saintfield, canal at Hillsborough (coll. N. H. Foster).

Antrim.—Lagan Canal and disused reservoir near Cave Hill (coll. W. H. Patterson).

Derry.—Enagh L. (coll. D. C. Campbell), R. Bann between Derry and Antrim (coll. R. A. Phillips and A. W. Stelfox).

Ephydatia fluviatilis (auct.) var. (Pl. XXVI, figs. 4–9).

Certain sponges have been collected in the west and south of Ireland which have proved difficult to determine, as the skeleton-spicules vary a good deal in the specimens from the different localities, and gemmules have not been found, although nearly all the examples were taken in the late summer. The sponges usually grew in great abundance at a given locality, and as many as one hundred specimens have been preserved from a single spot. The skeleton-spicules of these sponges are short, often very thick oxea, the majority in one specimen spined to their tips, in another smooth. Examples collected in two localities, namely, in the Drumcliff River draining Glencar Lough, County Sligo, and in the River Boyle below Oakport Lough, County Roscommon, seem to offer a clue to their identity.

The skeleton-spicules vary in an unusual degree in the sponges from these two rivers, more particularly in those from the Drumcliff River, some of them being very similar to the spicules just alluded to. Although gemmules were not found, yet a fair number of scattered amphidises are to be seen in the spicule preparations. These amphidises quite agree with the corresponding spicules of typical specimens of *Ephydatia fluviatilis*. It has been concluded, therefore, that the foregoing sponges represent a variety or phase or race of *E. fluviatilis* which does not produce gemmules, or at least produces them with extreme rarity, and which possesses, to the exclusion of the more typical skeleton-spicules, one or other form, such as occurs as an occasional abnormality in typical specimens of *E. fluviatilis*. The abnormal spicules, which occur only occasionally in some specimens, may occur in numbers in others, which undoubtedly are quite typical of that species. For convenience, these peculiar sponges are referred to as *E. fluviatilis*, var.

The sponges, including those from the above-mentioned rivers, agree in external appearance. They form thin, more or less circular, patches on the upper and under surfaces of stones: they are very hard to the touch, their surface is even, but is seen under the lens to be minutely hispid from the tips of the terminal spicules of the main skeleton-fibres, which project very

slightly above the surface. The specimens are of all sizes, up to about 20 mm. in diameter. Those from the rivers tend to be rather larger, but this is usually the case with sponges taken in such a habitat (see p. 219). In this connexion it may be mentioned that Dr. Annandale (**5**) describes and figures specimens of the Himalayan race of *E. fluviatilis*, which were growing on stones in the form of flat, circular films. A few of the Irish specimens tend to be thicker, and are like little rounded cushions, while a number of examples taken from the River Erne early in the year form small, smooth, rounded masses growing on water-plants, and are rather soft to the touch.

The oscula are small, but are rendered more conspicuous by the well-marked, branching, sub-dermal canals which radiate from each osculum.

The sponges are bright green in colour when exposed to the light, and greyish-white when shaded from it. In the latter case they resemble to a remarkable degree the lake-form of *Heteromeyenia Ryderi*, but, unlike that species, they flourish on the limestone. The specimens are nearly always densely crowded with embryos.

With regard to the structure of the skeleton, the main fibres run vertically upwards from the base to the upper surface of the sponge, branching once or twice in their course. They consist of multiserially arranged megascleres, bound together by a small amount of spongin. The tips of the terminal bundles of spicules project very slightly above the surface of the sponge. The main fibres are united by single spicules, or by bundles of two or more spicules lying at right angles to them.

In specimens from various points along the shores of Lough Erne and of Lough Gill, from Lough Feeagh, County Mayo, and Lough Derg, County Tipperary, the megascleres are rather short, fairly thick, or sometimes very thick, abruptly pointed oxea, which are microspined to the very tips. A few among them are smooth. In some examples many of the oxea have a central swelling; in others only a few possess it. In the sponges from Oakport Lough, County Roscommon, and Ballyscanlan Lough, Co. Waterford, for example, the spicules are very similar to the foregoing in shape and size, but are smooth. The spicules from the latter locality have often a central swelling of the shaft, and are particularly like those described and figured by Müller (**27**) for a sponge which he regarded as a probable variety of *E. fluviatilis*, and which will be referred to more fully later on.

Gemmule-spicules have been very carefully searched for in many preparations made from these sponges, but without success, except for one malformed amphidisc found in one of the Ballyscanlan Lough specimens.

The size of the megascleres varies somewhat from one specimen to another; they are, on the whole, between 0·18–0·27 mm. in length. In some

specimens the maximum diameter is 0·015 mm., but in others it is 0·02 mm., or even as much as 0·027 mm. The spicules are thus decidedly shorter and thicker than the typical oxea of *E. fluviatilis*, but more nearly resemble the short, thick spicules often to be found in that species.

The specimens from the Drumcliff River and the River Boyle, already alluded to as affording a clue to the identity of these sponges, are exactly similar to them in external appearance, being hard to the touch, and growing in thin, more or less circular, patches. With regard to the spicules, the Drumcliff River sponges possess many short, thick, abruptly pointed, smooth, or microspined oxea, and in addition longer, more slender, gradually pointed smooth oxea, some of which possess a central swelling. These latter are like the oxea of typical specimens, which often, it must be remembered, also possess many short, thick spicules, some of them microspined. The sponges possess in addition a few scattered amphidiscs, which are quite the typical *E. fluviatilis* shape. The specimens from the River Boyle closely resemble the Drumcliff River examples, and, like them, possess scattered amphidiscs. Typical specimens of *E. fluviatilis* were absent from both these localities, so that the amphidiscs must belong to the specimens in which they were found, and are not a chance admixture, as so often happens.

Sponges were collected in the lakes drained by these rivers, in Glencar Lough and in Oakport Lough respectively, which possessed rather short, thick spicules, without the longer ones found in the river specimens (compare the change in the megascleres of *Heteromeyenia Ryderi* under similar conditions), nor were any amphidiscs found even after prolonged searching. With regard to the presence of gemmule-spicules in lake and river sponges, it is interesting to quote Dr. Annandale's reference to the production or non-production of gemmules. He states (**6**, p. 74) that "evidence, moreover, is accumulating that the adoption of a limnic as distinct from a fluviatile mode of life is liable to produce degeneration of the gemmules in fresh-water sponges." The most notable instance so far known is *Heteromeyenia Ryderi*, which, both in North America and in Ireland, produces gemmules with great rarity in lakes, and in great abundance in rivers.

To return to the consideration of the megascleres of the foregoing sponges, if it were imagined that spicules, such as those figured on Pl. XXVI, figs. 9, b, c, were produced to the exclusion of the other types of spicules, the result would be a sponge possessing spicules similar to those from Ballyscanlan and Oakport Loughs (Pl. XXVI, figs. 5 and 7).

A similar type of spicule to that figured on Plate XXVI, fig. 9, c, is also commonly found in perfectly typical specimens of *E. fluviatilis*, such as that figured on Pl. XXVII, fig 4. Again, if spicules, such as those figured

on Pl. XXVI, fig. 9, d, e, were produced to the exclusion of other types, the resulting sponge would possess spicules somewhat similar to those of the sponges from Lough Erne, Lough Derg, and Lough Gill (Pl. XXVI, figs. 4, 6, and 8). With these may be compared the microspined spicule taken from a perfectly typical specimen of *E. fluviatilis* (Pl. XXVII, fig. 5). It may be noted that these peculiar sponges have up to the present only been found in the west and south, where the typical *E. fluviatilis* appears to be rare. They occurred in abundance in the localities in which they were found. No trace of such a form was discovered in County Dublin, for example, where *E. fluviatilis* is extremely common, and where there was abundant opportunity for collecting at different seasons of the year.

Reference has been made to a sponge from the River Lahn, near Marburg described by Müller (**27**) as a probable variety of *E. fluviatilis*. In this the spicules are short, thick, smooth oxea, with a central swelling; they are very similar to the spicules of the sponges from Ballyscanlan Lough (Pl. I, fig. 5). In addition, the River Lahn sponge possesses a number of scattered amphidiscs like those of *E. fluviatilis*; some of them are rather abnormal in shape, but similar forms are often found in quite typical examples of that species.

Wierzejski (**56**), writing on the abnormalities of the spicules in the Spongillidae, refers to Müller's specimen, and says that he has no doubt but that it is an abnormal form of *Ephydatia*. He refers also to the fact that when abundant material of any of the European Spongillidae is examined, many abnormalities of the various kinds of spicules are to be seen, and sometimes these abnormal spicules are so predominant that one seems to see new varieties, or even new genera.

LOCALITIES.

WATERFORD.—Ballyscanlan L. near Tramore.

TIPPERARY.—L. Derg in Barrett's Bay, dredged at 14 feet (coll. R. Southern).

ROSCOMMON.—Oakport L. and R. Boyle at Cootehill.

GALWAY.—L. Rea (as *E. Mülleri*, **21**), and recently collected on several occasions in the lake by R. A. Phillips.

SLIGO.—L. Gill at Rockwood (as *E. Mülleri*, **43**), Glencar L., and Drumcliff R.

LEITRIM.—L. Gill at O'Rorke's Castle (as *E. Mülleri*, **43**).

FERMANAGH.—L. Erne off Caldragh Island and Eagle Island (coll. Major Trevelyan), R. Erne at Enniskillen (coll. R. Welch).

Ephydatia Mülleri Lieberkühn. Pl. XXVIII, fig. 1.

Ephydatia Mülleri is apparently the rarest of the fresh-water sponges found in Ireland, only two undoubted specimens having been collected within

recent years. One, dredged in the River Erne at Enniskillen, is merely a small mass of gemmules held together by the remnants of the sponge of the previous year's growth. The other is a very fine cushion-like specimen, about 180 square mm. in extent, which was found growing at the base of an overhanging rock in the River Tolka near Ashtown, Co. Dublin. It was pale yellow in colour, and the surface was slightly ridged. The whole sponge was crowded with gemmules, and the characteristic large vesicular cells, commonly called "bubble cells," were present in great abundance. Another large sponge growing within three or four yards of it looked exactly like it, but was softer in texture, and proved to be a perfectly typical *Ephydatia fluviatilis*. A careful search was made along the river, both at the time of finding these sponges and in the following year, for further specimens of *E. Mulleri*, but without success. *E. fluviatilis* is quite common in the river.

The spicules of both the River Erne and the River Tolka specimens of *E. Mulleri* are quite typical of the species: in neither case could they be confused with the spicules of any of the specimens of *E. fluviatilis* found in this country, although the distinction usually made between the two species, namely, that one possesses only smooth, the other spined as well as smooth skeleton-spicules, can no longer be maintained. The megascleres of the *E. fluviatilis* found in the pond in the Zoological Gardens, Dublin, it is true, approach closely to the corresponding spicules of the Erne *E. Mulleri*, which are rather slender, but the spicules of the former are longer.

The presence of bubble-cells in *E. Mulleri* at once distinguishes it from the closely allied *E. fluviatilis*.

Sponges found in different parts of Ireland have been attributed to *E. Mulleri* from time to time. Of Bowerbank's slides of *Spongilla Parfitti* (= *E. Mulleri*), in the British Museum, his preparation made from one of Dr. Battersby's specimens from the "Lake of Killarney" (**12**, p. 169), is without gemmules, but the megascleres appear to be undoubtedly those of *Heteromeyenia Ryderi*, a species which is very common in the Middle Lake of Killarney. Another of Bowerbank's preparations, labelled "*Spongilla Parfitti*, Caragh Lake," is evidently *Ephydatia Mulleri*. It contains many gemmules which possess very irregularly shaped amphidiscs.

Judging from Hanitsch's figures of the skeleton-spicules of a sponge from Lough Rea, Co. Galway (**21**, Pl. 4, fig. 4 a, b), his specimens were not *E. Mulleri*, but belonged to the peculiar race or variety of *E. fluviatilis*, described on p. 232. Sponges recently collected in Lough Rea also belong to that race. The same remark applies to the specimens named *E. Mulleri* by the present writer in the Report on the Sponges of the Clare Island Survey (**41**), and from Lough Gill (**43**).

The Irish material of *E. Müllcri* is obviously too scanty to allow of any study of the variations which may occur in the species. The megascleres of the River Erne sponge are rather slender; they measure 0·2–0·25 mm. in length by 0·008–0·01 mm.; those from the River Tolka specimen are robust, measuring 0·225–0·3 mm. in length by 00·13–0·018 mm. The amphidiscs in both cases have a length of 0·01–0·013 mm., with a disc 0·02 mm. in diameter.

LOCALITIES.

KERRY.—Caragh L., as *Spongilla Parfitti* (**12**).
DUBLIN.—R. Tolka near Ashtown.
FERMANAGH.—R. Erne at Enniskillen (coll. R. Welch).

Heteromeyenia Ryderi, Potts.

Heteromeyenia pictovensis, Potts.
Heteromeyenia Macouni, MacKay.
(Pl. XXVIII, figs. 2-8.)

This species was described by Edward Potts in the year 1882 from specimens found in a small stream flowing into the Delaware River, below Philadelphia (**29**). Three years later it was recorded from the State of New Hampshire; and at about the same time Potts described as new a sponge collected in several lakes in Nova Scotia (**32**). This sponge he named *Heteromeyenia pictovensis*. Before long, however, Potts was forced to the conclusion (**33**, p. 244) that *H. pictovensis*, as well as other forms he had collected in the meantime, had not sufficient claim to be ranked as distinct species. He accordingly redescribed the typical form of *H. Ryderi*, adding the following varieties: *pictovensis*, *Walshi*, and *Baleni*. The species was at this time known in the strip of country along the Atlantic coast of North America from Nova Scotia to Florida and in the State of Iowa. Later on it was recorded from Indiana (**23**).

In the year 1890 Dr. A. H. MacKay, the discoverer of the *pictovensis* form of *H. Ryderi*, described a sponge from Sable Island (**26**). It grew in abundance in the only fresh-water lake on the island, which is itself merely a great sand-bank twenty miles long by about a mile wide, lying one hundred miles off the coast of Nova Scotia. The sponge was considered to be a distinct species, and was named *H. Macouni*. At the same time, the author noticed its likeness to certain forms of *H. Ryderi*, with slender spicules, and suggested that it might have to be reduced to a variety of that species. From an examination of some of the type material kindly given me by Dr. MacKay, I have come to the conclusion that the Sable Island sponge cannot be separated specifically from *H. Ryderi*. It is, indeed, exactly similar to

specimens of that species taken in a lake on Inishbofin, off the Galway coast, which are here grouped with the *Baleni* form of *H. Ryderi*.

Some years before the Sable Island sponge was described, the discovery of *H. Ryderi* in a lake in the west of Ireland was announced (**20**, **21**). During the following ten years the species was recorded from three or four other localities in Ireland, and, finally, the recent field-work carried out in many parts of the country has proved that it is widely distributed in Ireland in non-limestone areas, in which areas it is the commonest species of fresh-water sponge.

H. Ryderi is now known to occur in Scotland, where it was recorded by Dr. Annandale under the name *Tubella pennsylvanica* (see p. 215).

Heteromeyenia Ryderi is well known to be a very variable species, and its extreme forms differ very much from each other both in external appearance and texture, and in the shape and size of the skeleton-spicules. That they differ so much is shown by the fact that they received names as distinct species: *H. Ryderi* Potts, *H. pictovensis* Potts, *H. Macouni* MacKay. Potts soon recognized the great variability of the species in North America, and described how, "in spite of an exceedingly rebellious disinclination," he was forced to the conclusion that the forms which had passed through his hands must be regarded as belonging to one and the same species.

When systematic collecting of fresh-water sponges was undertaken in Ireland, it was realized before long that *H. Ryderi* was equally variable on this side of the Atlantic; and it is interesting to notice that the species assumes closely similar forms in both countries (**41**, p. 9). We have the typical *H. Ryderi* from streams and rivers, the hard, compact form (var. *pictovensis*) from lakes, and the slender-spiculed form (var. *Baleni*) from lakes in which the conditions are unfavourable to robust growth of the sponge. The form with slender branches (var. *Walshi*) has not yet been found in Ireland.

The spicules in both American and Irish specimens are the same, except that the macroscleres are slightly thicker, on the whole, in the former, and the discs of the shorter gemmule-spicules are less deeply indented. Probably the growth of the sponge is more vigorous in every way in North America than in Ireland. The slender-spiculed specimens in both countries have the shorter gemmule-spicules possessing deeply indented discs.

Although the forms are thus closely paralleled in these widely separated countries, yet there is an interesting difference in their mode of growth. In North America the various forms of the species grow in situations exposed to the light (the first-found specimens were growing on the upper surface of stones), and their colour is described as light green or vivid green. In

Ireland the sponge grows in situations sheltered from the light, nearly always under stones. It is pale yellowish or greyish-white in colour. On the rare occasions on which the sponge was found in places where a certain amount of light penetrated to it, there was still no trace of any green colouration. One or two specimens indeed were taken which were dull green in colour, but these were penetrated in every direction by a green filamentous alga.

H. Ryderi is only found in Ireland on non-calcareous rocks. The North American localities for the species are not given in sufficient detail to enable one to decide if it always avoids limestone areas in that continent. Dr. MacKay, the discoverer of the *pictovensis* form of the species, writing from Nova Scotia, informs me that so far this form appears to be found in non-calcareous regions in that province. Potts states that the species has been taken chiefly in the States, along the Atlantic coast. The eastern maritime States of North America are for the most part free from limestone, so that it is possible that the species avoids calcareous rocks in North America as it does in Ireland.

As *H. Ryderi* avoids the limestone, its distribution in Ireland is very striking. It is absent from the whole centre of the country which constitutes the Great Limestone Plain of Ireland, and it is confined to those parts of the maritime counties which are formed of non-calcareous rocks. It is not confined to the west, as was thought on its first discovery in Ireland, but occurs in the north and south, as well as in the east. It grows in low-lying lakes and rivers, as well as in mountain tarns and streams. It is usually the only species found in the higher mountain lakes. The highest altitude at which the species has been taken is 1,868 feet.

As already stated, the various forms assumed by *H. Ryderi* in Ireland approximate closely to three varieties of the species described by Potts from North American specimens. These varieties are united by specimens showing every possible gradation between them, yet the great majority of the specimens obtained may be assigned to one or other of the three main types. The arrangement proposed in the report on the fresh-water sponges of the Clare Island Survey is therefore adhered to here for convenience of description and of reference. The three main types under which the specimens are grouped are as follows :—

Group I.—*Heteromeyenia Ryderi* Potts. Typical or River Form.

Group II.—*Heteromeyenia Ryderi* Potts, form *pictovensis*, Potts or Lake Form.

Group III.—*Heteromeyenia Ryderi* Potts, form *Baleni*, Potts.

GROUP I.

Heteromeyenia Ryderi Potts. Typical or River Form.

This form occurs in rivers and streams, and corresponds to the typica *Heteromeyenia Ryderi*, described from specimens taken in "shallow, flowing water" in North America.

In this country the sponge grows nearly always under the shelter of stones, but sometimes spreads from them to envelop the stems of water-plants. Occasionally it is found on dead, submerged branches. The smaller specimens are more or less circular in outline; they are thickest in the middle, and thin out towards the edges, so that the upper surface is somewhat dome-shaped. The larger specimens spread out into lobed, encrusting masses of irregular shape, but sometimes of considerable size. The sponge is pale yellowish in colour, very soft to the touch, and very fragile. The surface is even, but under the lens the dermis is seen to be raised up on the tips of the main skeleton-fibres into very minute points. In preserved specimens, at least, the main fibres sometimes pierce the dermis and project very slightly. The oscula are small and inconspicuous, being about 1-2 mm. in diameter.

The skeleton is made up of main fibres, usually about 0·02–0·03 mm. in thickness, which run upwards through the sponge and occasionally branch. They consist of spicules in usually three to four rows. When the spicules are more slender, a greater number of them lie side by side. These main fibres are the length of one spicule apart, and are united by spicules at right angles to them, which usually lie singly, but sometimes are in bundles of two or three. These transverse fibres do not form continuous fibres. In places the skeleton is confused, but usually becomes more regular towards the surface of the sponge.

Spongin is very scanty in quantity.

The skeleton-spicules are slightly curved, occasionally straight oxea; they taper evenly to both ends, which are pointed. The shaft is thickly covered with rather small spines, except at the extreme tips, which are smooth. Unlike the skeleton-spicules of the lake form of the species, these oxea are very constant in shape, and vary only in length and thickness from one specimen to another. They measure usually from 0·2–0·33 mm. in length, with a maximum diameter of 0·01 mm., or even 0·013 mm.

The longer gemmule-spicules have a straight shaft, usually rather thickly set with strong spines, which are straight or curved. At either end of the spicule are found six terminal, strongly curved spines. These spicules measure 0·04–0·055 mm. in length.

The shorter gemmule-spicules have a straight shaft set with usually one to several strong, straight spines. Sometimes the shaft projects for a short distance above the disc. The terminal discs are toothed, the indentations being deeper than in the corresponding American form. The length of these amphidiscs is 0·03–0·035 mm.; the diameter of the disc is 0·02 mm.

Gemmules occur in great numbers in the typical form of *H. Ryderi*; and they have been found mature as early in the year as June. When mature they are a bright yellow colour. Their diameter varies from 0·5 mm. to 0·7 mm.

GROUP II.

Heteromeycnia Ryderi Potts, form *pictovensis* Potts, or Lake Form.

This form grows in lakes, and is very compact and hard to the touch. It corresponds to the form, at first named *H. pictovensis*, which was discovered in lakes in Nova Scotia.

The sponge is pale yellowish or greyish-white in colour. It is circular in outline, and is usually not more than 20 or 30 mm. in diameter, but sometimes reaches a diameter of 50 or 60 mm. The surface is even, but under the lens is seen to be raised up into minute points by the tips of the main skeleton-fibres, which penetrate the dermis, and project very slightly. The sponge is thickest in the middle, and especially in the larger specimens is sometimes raised up into knob-like elevations. The oscula are about 1 mm. in diameter, but are rendered more conspicuous by the fact that immediately below the dermis numerous furrows radiate from them in all directions. In the autumn the sponge begins to die away at the centre, so that many specimens are found in the form of a flat ring, the centre of the sponge having completely decayed away.

The skeleton is arranged in the same way as in the typical form. The main fibres, which are about 0·025–0·05 mm. in thickness, are a spicule-length apart, and are therefore more closely placed than in the typical form, as the spicules in the lake form are shorter. In the interior of the sponge the skeleton is very confused, but becomes more regular towards the surface.

The skeleton-spicules show great variation. The shaft is straight or slightly curved, and terminates at each end in a longer or shorter point, or one or both ends may be rounded off. It is densely covered with sharp spines throughout its entire length. Sometimes the spines are scattered more sparsely along the middle of the shaft, and are crowded towards the ends. The smaller the spines the more thickly are they placed. Some spicules are set with comparatively few very strong spines. Some specimens possess fairly uniform spicules, others very varying ones, but

usually one or other type of spicule predominates in a specimen, and all the specimens from a given lake have the same types of spicules. The spicules also vary very much in both length and thickness. They usually measure from 0·12–0·25 mm. in length. The variation is not so great in a single sponge; and in many the maximum length is 0·2 mm. The maximum thickness is commonly 0·015 mm., but may be as much as 0·02 mm. In specimens with very robust spicules there often occur very short thick spicules, measuring about 0·05–0·08 mm. by 0·02 mm., or even 0·025 mm.

The gemmule-spicules are the same as in the typical form, but are sometimes more robust. The gemmules are very scarce, and very many specimens may be collected from neighbouring lakes in the autumn without finding a single gemmule. When present, the mature gemmules are bright yellow, and are the same size as those of the typical form.

Embryos are often present in the lake form in great numbers.

Group III.

Heteromeyenia Ryderi Potts, form *Baleni* Potts.

This form usually occurs in small, lobed masses on water-plants. It is very soft to the touch, and of a pale yellowish colour. More rarely it grows in small, soft, more or less circular, whitish-grey films on the under-surface of stones. In the former state it resembles the typical *H. Ryderi*; in the latter, it approaches the *pictorensis* form in external appearance.

The skeleton is arranged on the same plan as in the preceding forms; but, owing to the extreme slenderness of the skeleton-spicules, at first sight it appears to differ considerably. The main fibres, which are about 0·02–0·03 mm. in thickness, run upwards in an irregular manner through the sponge, dividing occasionally. They consist of multiserially arranged spicules, and are united by single spicules, or by bundles of spicules, which do not form continuous fibres. Other oxea lie scattered irregularly through the sponge. The whole arrangement of the skeleton is often rather confused.

The skeleton-spicules are straight or slightly curved oxea, which taper evenly to sharp points. The shaft, except at the ends, is thickly covered with very fine spines. The spination cannot be made out on the thinnest spicules. The oxea are about 0·16–0·26 mm. in length. The maximum diameter is about 0·005 mm.; but most of the spicules are much finer.

Both kinds of gemmule-spicules are exceedingly slender. The terminal, recurved spines of the longer are usually straighter than in the typical form, and the discs of the shorter ones are deeply indented. Thus the difference between the two kinds of amphidiscs is less marked than in the

more robust forms of the species. In specimens with very slender spicules the shafts of the amphidiscs are smooth. The shafts of thicker amphidiscs are furnished with one or more spines.

Gemmules are usually fairly numerous. They measure about 0·5–0·7 mm. in diameter, and thus are as large as those in the stronger forms of the species. It may be noted that gemmules are scarcest in the most robust form (*pictovensis*, Potts).

H. Ryderi, form *Baleni*, is merely a starved form of the species. It occurs in very small quantities in the lakes and streams in which it is found.

The spicules of the specimens found in Church Lough, Inishbofin, agree in every particular with those of the sponge from Sable Island, which was named *H. Macouni* MacKay (**26**). The measurements of the spicules from these widely separated islands are of interest. In the Sable Island sponge the oxea are 0·15–0·26 mm. long, with a maximum diameter of 0·005 mm. The longer amphidiscs are 0·035–0·05 mm. long; the shorter, 0·018–0·026 mm. long. In the Inishbofin sponge the oxea are 0·16–0·24 mm. long, with a maximum diameter of 0·005 mm. The longer amphidiscs are 0·035–0·04 mm. long; the shorter, 0·025–0·03 mm. long.

These extreme forms are not sharply divided from the form referred to on page 244, which occurs fairly abundantly in certain lakes. Specimens have been collected which show every link between the two.

Although the lake and river forms differ so much from one another, all the intermediate links between them can be obtained by collecting the sponge in a lake where it grows abundantly, and then tracing it down the course of the stream which drains the lake. This has already been described in the case of a lake, Lugaloughaun, in Co. Mayo (**41**). Since that account was written many other localities have been searched, always with similar results, namely, that at a varying distance below a lake, usually just below it, the hard lake form of *H. Ryderi* dies out and the soft, lobed, river form takes its place. In several instances specimens of *H. Ryderi*, apparently like the lake form, were found at some little distance down the river. Hard, compact specimens were taken several hundred yards down a rapid stream, flowing from Lough Unshin in Co. Donegal (**41**, p. 14); but they differed from the lake specimens in being much larger, and in possessing mature gemmules. Their spicules also had begun to change. In the lake the skeleton-spicules were straight, and their ends were usually rounded off. They measured 0·125–0·175 mm. by 0·015 mm. In the specimens from the stream all the spicules had pointed ends, and many of them were slightly curved. They were longer and more slender, measuring 0·135–0·25 mm. by

0·01 mm. Similar hard specimens were taken in the Caragh River, about half a mile below Caragh Lake, Co. Kerry; but here again the spicules had changed slightly, being longer, more slender, and possessing longer points than those of the lake specimens. In Connemara, where the lakes are often united by channels, sometimes only a few yards in length, really typical specimens of *H. Ryderi* were not found. In these short, though sometimes rapid, streams, *H. Ryderi* was hard; but, as in the foregoing cases, the spicules had begun to change in shape.

Dr. Annandale (**3**, p. 40 and p. 126) notes a similar change in the external appearance of an Indian fresh-water sponge, *Corvospongilla lapidosa*, according as it occurs in still or running water. In the former the sponge grows on the under surface of stones, in small crusts, which have a flat surface, except where the oscula are raised on conical eminences. In running water the sponge grows in broad sheets, which have a corrugated surface. This resembles the change in appearance of *H. Ryderi*. On the other hand, the Indian sponge is harder in texture in running water than it is in the lake, the opposite being the case with *H. Ryderi*. Apparently the spicules do not differ in the lake and river forms.

A form of *H. Ryderi* intermediate between the hard lake form and the typical river form is found in Irish lakes, where the conditions are apparently unfavourable to robust growth, but yet where the sponge grows fairly abundantly. Such lakes are Lough Ouler and Upper and Lower Lough Bray, in Co. Wicklow; the Coumgorra Lakes, Co. Waterford; Lough Eagher, Co. Kerry; and Lough Cunnel, Co. Mayo. These lakes it may be noted, lie mostly at high altitudes for this country. With the exception of Lough Cunnel, which is at 690 feet, they lie between 1,225 and 1,896 feet.

Externally the sponge taken in the foregoing localities and in other similar situations resembles the lake form, except that it spreads over a greater area, and its outline is not so circular. It is soft to the touch, but is not so lobed as is the river form. On the other hand, its spicules are similar to those of the river form, from which they cannot be distinguished (Pl. XXVIII, fig. 8). In some cases there is, perhaps, a larger proportion of straight spicules than in river specimens. Gemmules are, as a rule, present in fair numbers, another point of difference from the usual lake form. In the report on the fresh-water sponges of the Clare Island Survey, the Lough Cunnel sponge is referred to (**41** p. 14) as being of the typical form of *H. Ryderi*. With material from other localities available for examination, I do not now consider this sponge and others similar to it, to be altogether typical, and believe that strictly speaking, the typical *H. Ryderi* occurs solely in running water, in streams and rivers.

The foregoing semi-typical form leads on to the *Baleni* form, with very slender spicules, which grows in lakes, where the conditions are still more unfavourable to robust growth, and where the sponge only exists in small numbers, as already described.

H. Ryderi occurs in the semi-typical form just referred to in most of the mountain tarns lying at or above the 1,000 feet contour, and it has also been taken in one or two lakes at a rather less altitude. The maximum size of the skeleton-spicules is 0·27 mm. in length by 0·008 mm., or, in a few specimens, 0·3 mm. by 0·01 mm. In three or four lakes, at or about the 1,000 feet contour, specimens of *H. Ryderi* occur which belong to the *pictovensis* group. But in all these specimens the spicules are more slender than in those specimens found at lower levels, their maximum thickness being 0·01 mm.

Thus the spicules in specimens in lakes lying at higher levels apparently do not reach as great a thickness as they do in low-lying lakes. The spicules of specimens in mountain streams are, as a rule, also slender. On the other hand, all the specimens belonging to Group III have been found at low levels. Potts (**31**) stated that "the spicules of all species [*i.e.* of fresh-water sponges] increase regularly in size and solidarity as we descend from high altitudes towards the sea-level, where is found the extreme of the series." The author also stated that he had traced the working of this rule more particularly in several variable species, among them *H. Ryderi*. Three years later he again referred to this rule (**33**, p. 240, foot-note), but in rather less dogmatic language, citing as well some exceptions to it. Hard and fast rules cannot be laid down where fresh-water sponges are concerned, yet, on the whole, it appears to be true that specimens of *H. Ryderi* occurring in lakes in Ireland at higher altitudes do not possess spicules of the maximum thickness for the species. At the same time, it must be remembered that specimens with very slender spicules are often found in low-lying lakes.

Localities.

Kerry.—L. Coomasaharn, L. Cummernamuck and out-flowing stream, Caragh L. and Caragh R., L. Yganavaun (coll. Hon. M. Spring Rice and Miss L. Stephens), Middle L. and Meeting of the Waters, Killarney; L. Avoonane and out-flowing stream, L. Doon (**21**) and out-flowing stream, L. Duff and out-flowing stream, L. Gall, stream from L. Nalacken (1,000 ft.), L. Cruttia (coll. R. Welch), L. Camclaun and out-flowing stream, Coumanare Lakes (1,250 ft.) and out-flowing streams, L. Adoon, Cloonee Loughs and Cloonee R., L. Inchiquin and out-flowing stream, L. Cummeenadillure and out-flowing stream, L. Eagher, 1,550 ft. (**38**).

Cork.—L. Avaul, Park L. and out-flowing stream, L. Coomarkane (1,100 ft.) and out-flowing stream, L. Coomadavallig (1,100 ft.) and out-flowing stream, L. Boy (1,800 ft.) and out-flowing stream.

Waterford.—Out-flowing stream from L. Coumshingaun (1,262 ft.), Coumgorra L. (1,700 ft.) and out-flowing stream.

Galway.—L. Nahillion (coll. G. P. Farran), L. Fee and L. Ballynakill (**39**), L. Bofin and out-flowing stream, Ardderry L., stream from Seecon L., Glendalough L., Nacoogarrow L. and out-flowing stream, L. Inagh and out-flowing stream, Kylemore L., Owengowla R., Derryclare L. and out-flowing stream, Ballynahinch L. and Ballynahinch R., L. Shindilla, L. Maumwee, L. Corrib (N.-W. arm), L. Sheedagh, L. Skannive and numerous small lakes in the neighbourhood of Roundstone.

Wicklow.—L. Dan and Avonmore R., L. Tay and Annamoe R., below the lake; L. Ouler (1,868 ft.), Upper L. Bray (1,463 ft.); Lower L. Bray (1,225 ft.) and outlet.

Mayo.—Creggan L., Clare Island; L. Namucka and L. Coolaknick, Inishturk (coll. R. Ll. Praeger and A. W. Stelfox); Church L., L. Gowlanagower and Loughnagroosaun, Inishbofin (coll. A. W. Stelfox); Sraheens L., Achill Island; L. Cullylea (coll. A. W. Stelfox); L. Feeagh and out-flowing streams, stream from L. Navroony, Moher L. and out-flowing stream, Owenwee R., L. Nacorra, L. Gall, Bellakip R., Bunowen R., L. Nahaltora, L. Cunnel, Glencullin L., Doo L., Tawnyard L., Fin L., Lugaloughhaun and out-flowing stream, Lugacolliwee L. For all the foregoing see (**41**).

Fermanagh.—Stream from Tullyvogy L., Tullynalaub L., Tullyloughmore L., L. an Laban, 1,000 ft. (all collected by Major Trevelyan).

Donegal.—L. Namramurrive, L. Meenasheagh, L. Achvog, L. Rusheen and L. Awaddy (coll. Major Trevelyn), Columbkille L. and out-flowing stream, Doon L. and out-flowing stream, Pound L., Cam L., L. Unshin and out-flowing stream, Knader L., L. Inn, L. Aluirg and outlet (coll. A. W. Stelfox).

Down.—Altnadua L.

Antrim.—Doo L. and out-flowing stream and L. na Crannog on Fair Head (**43**); lakes on Carnlough Mountains (coll. Major Trevelyan), L. Vicanor, Garron Head (coll. Mrs. Stelfox).

Geographical Distribution of Hetelomeyenia Ryderi Potts, and the means of Dispersal of the Species Discussed.

Heteromeyenia Ryderi is now known to occur in North America, along the eastern portion of the continent from Florida to Nova Scotia, and in Iowa and Indiana. It also occurs in Newfoundland and on Sable Island. In Europe

it is widely distributed in the non-limestone districts of the maritime counties of Ireland, and it occurs in Scotland.

Dr. Hanitsch, who believed that at least three species with a similar distribution to the foregoing occurred in Ireland, suggested (**21**) that three agents might have served to carry gemmules of fresh-water sponges from North America across the Atlantic to the west of Ireland—namely, winds, ocean currents, and birds. At one time it was supposed that strong winds could carry the seeds of plants long distances, but many botanists are now agreed that this means of dispersal has been greatly over-rated, and experiments prove that even seeds provided with special aerostatic apparatus are not carried to great distances (see R. Ll. Praeger, Clare Island Survey, Part 10, Phanerogamia and Pterophyta, Proc. Royal Irish Academy, xxxi, 1911). There would be less chance of gemmules being conveyed in this way, as not only are they not provided with wing-like expansions or other structures to enable them to be easily wind-borne, but are, on the contrary, weighted with their armour of siliceous spicules.

As to ocean currents, it has been suggested that the Gulf Stream might have carried gemmules or entire sponges containing gemmules to this country. It is quite impossible to think that a sponge, such as *H. Ryderi*, could stand a voyage across the Atlantic Ocean, even if attached to floating timber, especially when it is remembered that the only forms of this species in which gemmules are abundant are extremely soft and fragile. Nor does it seem probable that separate gemmules should be so conveyed, and this quite apart from the question as to whether they could germinate after prolonged immersion in sea-water.

With regard to the third agent mentioned by Dr. Hanitsch, it is suggested that birds might convey the gemmules, presumably in mud dried on their feet or feathers, as seeds of plants are known to be sometimes carried. In this connexion I would refer to a paper by Dr. Scharff (**37**), in which he brings forward evidence from the distribution of various plants and invertebrates (among the latter fresh-water sponges) to support the theory of the presence of a former land-bridge between North America and Europe. Referring to Dr. Hanitsch's statement as to the three possible agents for the dispersal of fresh-water sponges, Dr. Scharff says that he considers the only occasional means of transmission to be thought of seriously is that by birds; and even in this case he cites evidence to show that birds probably never fly directly across the Atlantic, nor is there reason to believe that they first set foot on the west coast of Ireland on reaching Europe.

In addition to the points brought forward by Dr. Scharff, I would suggest the following arguments against the transport of gemmules of *H. Ryderi* by

birds, from a consideration of the habitat and mode of growth of that species :—

(1) *H. Ryderi* does not grow where there is mud, but in clear water on the stony beaches of lakes, or on the stony beds of rivers, so that there would be little or no material to cement the gemmules to the feet or feathers of birds.

(2) Gemmules are extremely scarce in the lake form of *H. Ryderi* in North America (Potts and MacKay). In Ireland they are so scarce that hundreds of specimens may be collected even late in the year without finding a single one.

(3) Gemmules are numerous in the river form of *H. Ryderi* in North America (Potts). In Ireland (and ? in North America) they are most abundant in specimens in rapidly flowing clear rivers and streams, with boulder-strewn beds, at a short distance below a lake (see p. 219). The possibility of gemmules becoming attached to birds under these conditions would seem to be slight.

The chances of a successful introduction of the species into Ireland by means of birds would be lessened by the fact that *H. Ryderi* does not grow in this country in lakes or rivers on the limestone, so that a bird carrying gemmules would have to deposit them, if they were to germinate successfully, in fresh water in a non-limestone district; and as the sponge grows with difficulty in lakes with boggy shores they would have to be deposited in clear water on a stony bottom. Therefore I would consider that the distribution of *H. Ryderi*, as at present known, cannot be explained by any of these occasional means of dispersal; but that it may be cited among the evidences of a former land connexion between North America and Europe.

Dr. Annandale (**3**, p. 11) refers to this question of the dispersal of fresh-water sponges. In discussing the relationships of the fresh-water sponges and polyzoa of the Malabar Zone of India with those of Africa and of the countries east of India, he mentions aerial currents (in this case the monsoon) and marine currents as possible agents in the dispersal of these animals. But he dismisses both in a few words, as the resting reproductive bodies of the genera in the areas under consideration are either fixed to some solid support, or are without a special apparatus to render them light. Dr. Annandale states that the most satisfactory explanation as yet put forward to account for the relationships of these or other groups of animals is that of a former land connexion between the countries involved, that is to say, between Africa and the Malaysia through Malabar, in, perhaps, late Cretaceous times.

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DESCRIPTION OF PLATES.

PLATE XXVI.

Megascleres × 330; free microscleres and gemmule-spicules × 600.

1. *Spongilla lacustris* auct. *a*, megascleres; *b*, *c*, gemmule-spicules; *d*, free microsclere. Stream at Woodburn, Co. Antrim.
2. *Spongilla lacustris* auct. *a*, megascleres; *b*, gemmule-spicule; *c*, free microscleres. Derryclare Lough, Co. Galway.
3. *Spongilla fragilis* Leidy. *a*, gemmule-spicules; *b*, megascleres. Lough Fad, Fair Head, Co. Antrim.
4. *Ephydatia fluviatilis* auct. var. Megascleres. Lough Erne, off Eagle Island.
5. *Ephydatia fluviatilis* auct. var. Megascleres. Ballyscanlan Lough, Co. Waterford.
6. *Ephydatia fluviatilis* auct. var. Megasclere. Lough Derg, Co. Tipperary.
7. *Ephydatia fluviatilis* auct. var. Megascleres. Oakport Lough, Co. Roscommon.
8. *Ephydatia fluviatilis* auct. var. Megascleres. Lough Gill, Co. Sligo.
9. *Ephydatia fluviatilis* auct. var. *a–e*, megascleres; *f*, amphidisc. Drumcliff River, Co. Sligo.

PLATE XXVII.

Megascleres × 330; gemmule-spicules × 600.

1. *Ephydatia fluviatilis* auct. *a*, megascleres; *b*, *c*, side and end views of amphidiscs River Barrow, at Mageney, Co. Kildare.
2. *Ephydatia fluviatilis* auct. *a*, megascleres; *b*, *c*, *d*, side and end views of amphidiscs. Furnace Lough, Co Mayo
3. *Ephydatia fluviatilis* auct. *a*, megascleres; *b*, *c*, side and end views of amphidiscs. Pond in Zoological Gardens, Dublin.
4. *Ephydatia fluviatilis* auct. *a*, megascleres; *b*, *c*, side and end views of amphidiscs. Lagan Canal, Co. Antrim.
5. *Ephydatia fluviatilis* auct. Microspined megasclere. Lough Corrib, near Oughterard.
6. *Ephydatia fluviatilis* auct. *a*, megascleres; *b*, *c*, side and end views of amphidiscs. Mill-stream from River Dodder, Dublin.

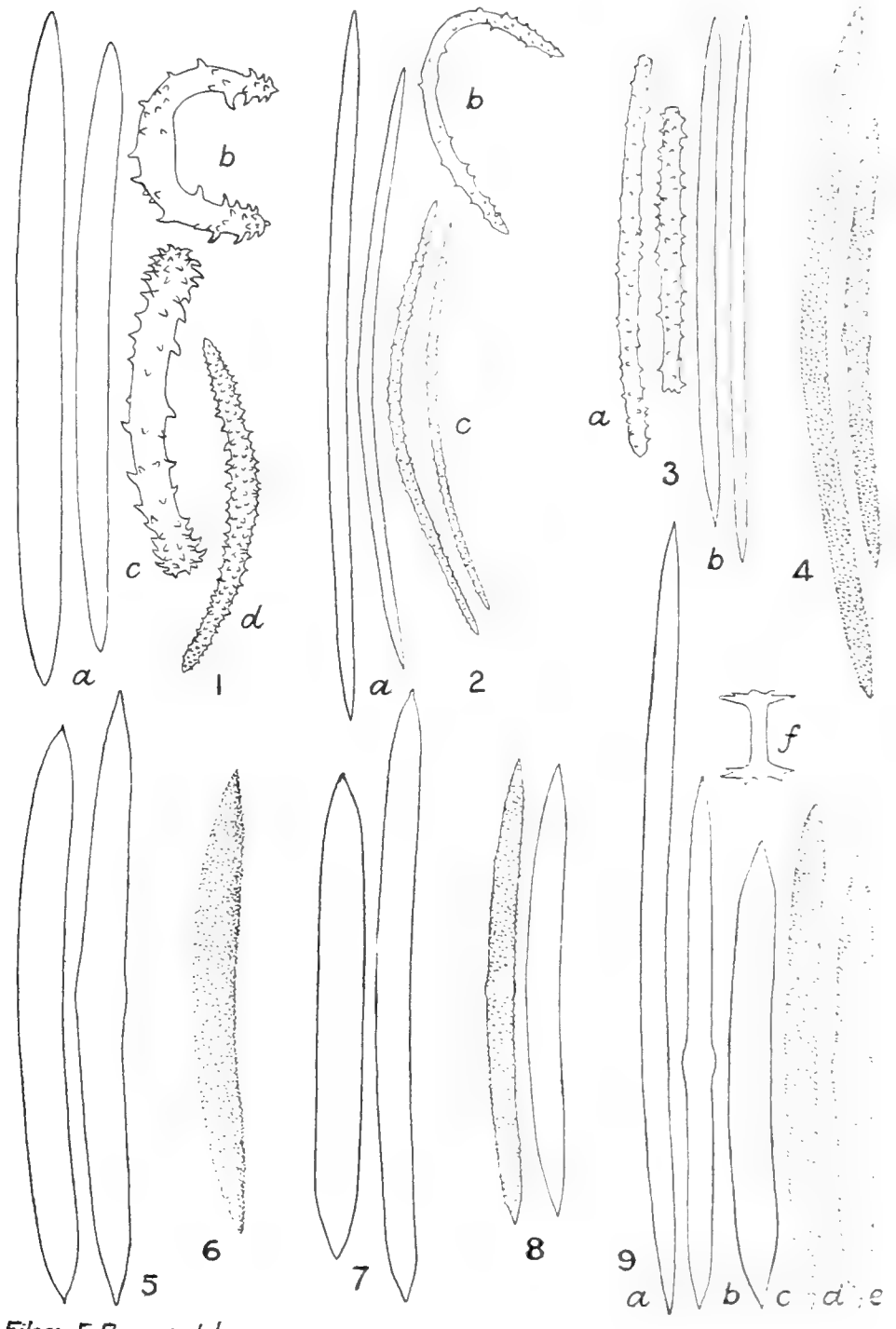
Plate XXVIII.

Megascleres × 330; gemmule-spicules × 600.

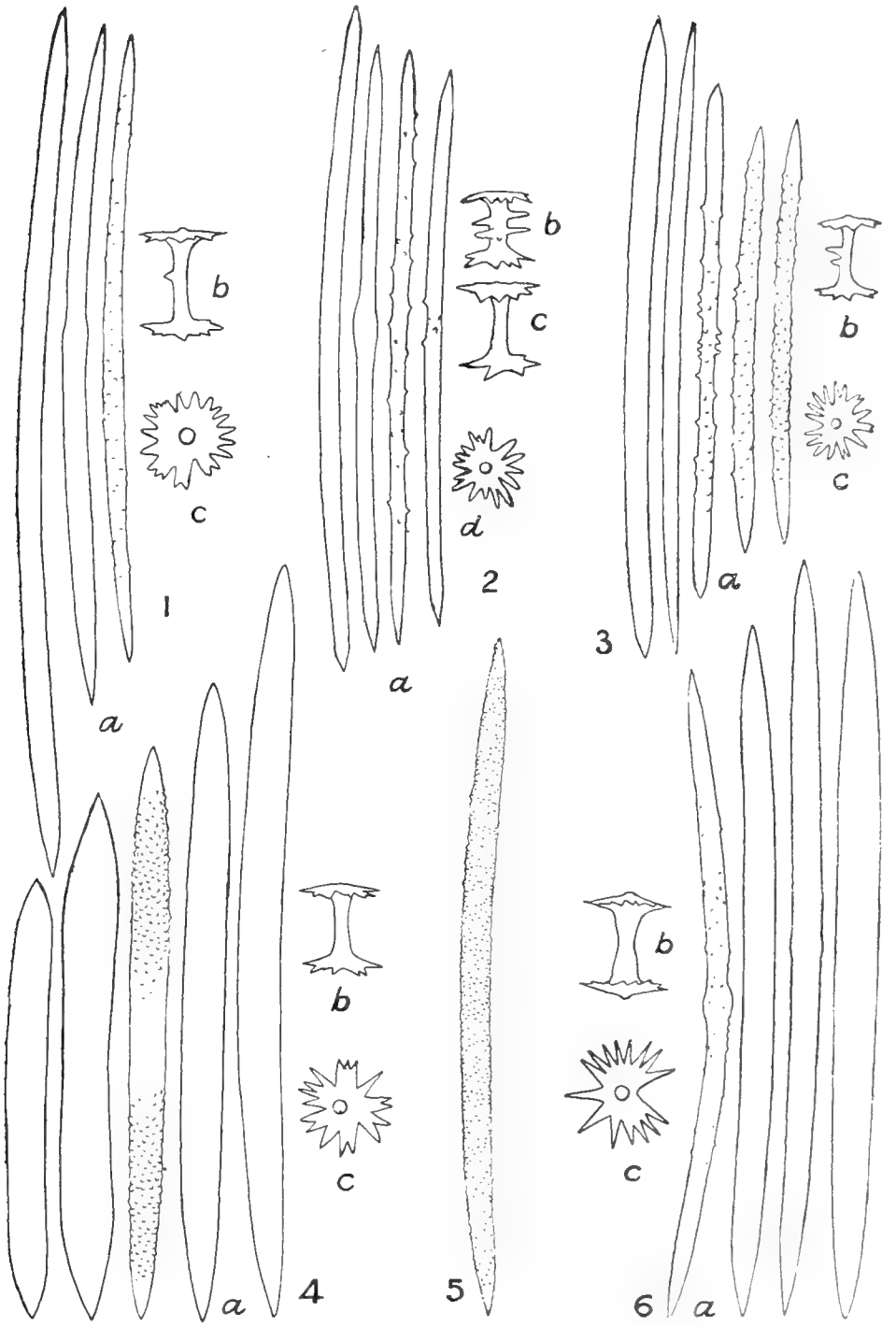
1. *Ephydatia Mülleri* Lieberkühn. *a*, megascleres; *b*, *c*, side and end views of amphidiscs. River Tolka, Co. Dublin.
2. *Heteromeyenia Ryderi* Potts. Typical form. *a*, megascleres; *b*, *c*, side and end view of shorter amphidiscs; *d*, longer amphidisc. Stream from Coumanare Lakes, Co. Kerry.
3. *Heteromeyenia Ryderi* Potts. *a*, megascleres; *b*, *c*, shorter and longer amphidiscs. Park Lough, Hungry Hill, Co. Cork.
4. *Heteromeyenia Ryderi* Potts, form *Baleni* Potts. *a*, megascleres; *b*, *c*, shorter and longer amphidiscs. Lough Yganavaun, Co. Kerry.
5. *Heteromeyenia Ryderi* Potts, form *pictorensis* Potts. *a*, megascleres; *b*, *c*, shorter; and *d*, longer amphidiscs. Lough Coolanick, Inishturk, Co. Mayo.
6. *Heteromeyenia Ryderi* Potts, form *pictorensis* Potts. Megascleres. Lough Altnadua, Co. Down.
7. *Heteromeyenia Ryderi* Potts, form *pictorensis* Potts. Megascleres. Lake on Carnlough Mountains, Co. Antrim.
8. *Heteromeyenia Ryderi* Potts. Semi-typical form. *a*, megascleres; *b*, *c*, shorter and longer amphidiscs. Lower Lough Bray, Co. Wicklow.

Plate XXIX.

Maps showing the distribution of the fresh-water sponges in Ireland as at present known—fig. 1, *Spongilla lacustris*; fig. 2, *Spongilla fragilis*; fig. 3, *Ephydatia fluviatilis*; fig. 4, *Ephydatia fluviatilis*, var.; fig. 5, *Ephydatia Mülleri*; fig. 6, *Heteromeyenia Ryderi*.



Eileen E Barnes, del.



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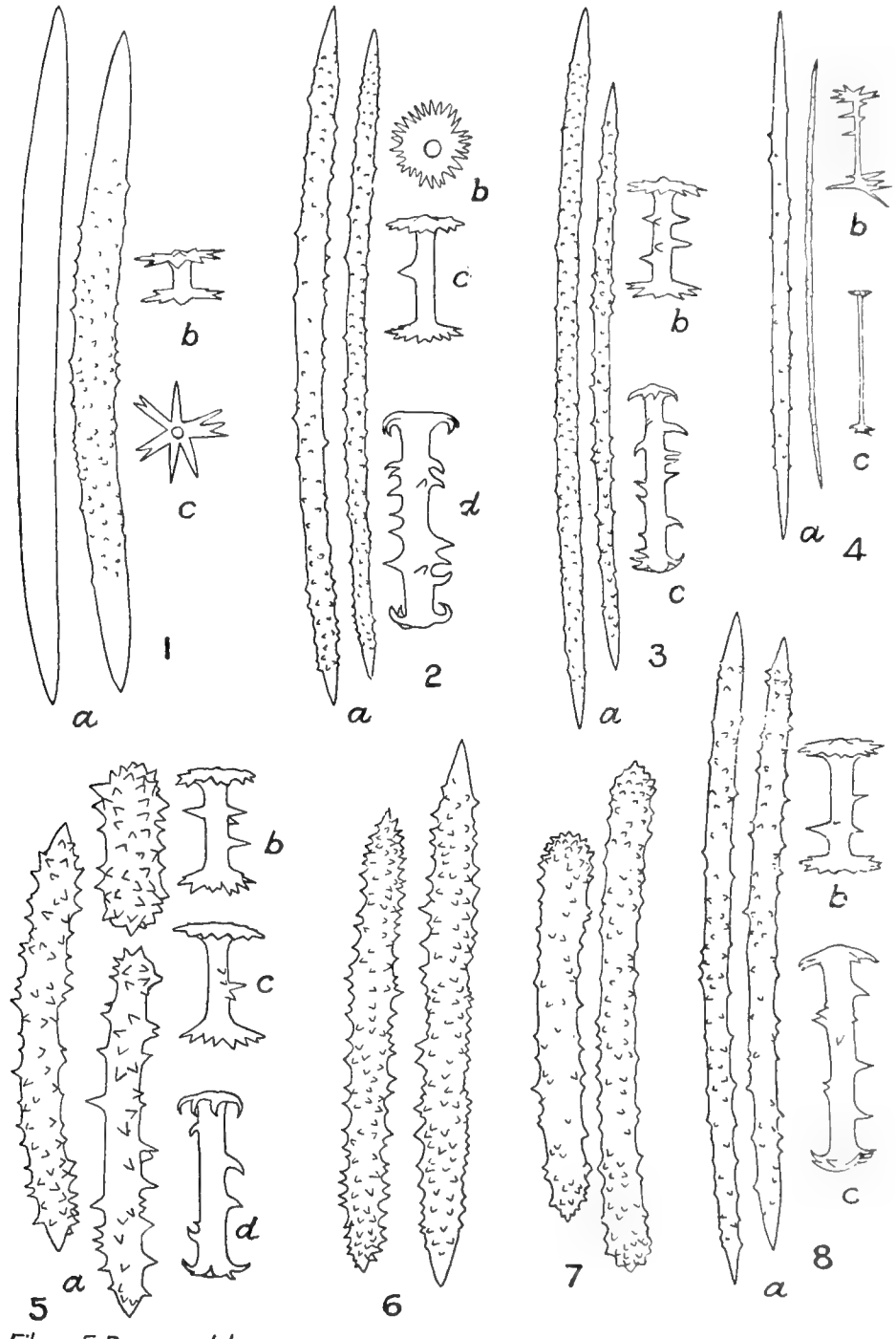

Eileen E. Barnes, del.

STEPHENS—THE FRESH-WATER SPONGES OF IRELAND.

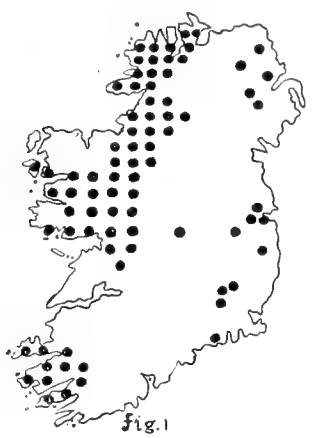

fig.1

fig.2

fig 3

fig 4.

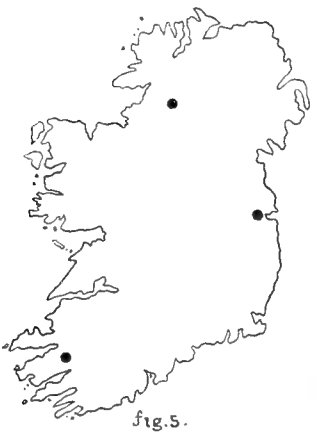

fig.5.

STEPHENS—THE FRESH-WATER SPONGES OF IRELAND.

PROCEEDINGS

OF THE

ROYAL IRISH ACADEMY

VOLUME XXXV

SECTION C.—ARCHÆOLOGY, LINGUISTIC, AND LITERATURE.

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1918–1920

THE ACADEMY *desires it to be understood that they are not answerable for any opinion, representation of facts, or train of reasoning that may appear in any of the following Papers. The Authors of the several Essays are alone responsible for their contents.*

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CONTENTS

SECTION C.—ARCHÆOLOGY, LINGUISTIC, AND LITERATURE.

ERRATA.

SECTION C.

p. 49, l. 11, . . . *For* Clare *read* Pembroke.

p. 61, l. 23, . . . *For* contemplatione *read* contemplationi.

p. 127, l. 24, . . . *For* iusticariis *read* iusticario.

p. 215, l. 29, . . . *For* cave *read* rath.

p. 235, Genealogical Table. Flannacan was son of Mael Isa, not of Domnall. The statement that the ancestors of Amhalgaid are unknown is incorrect. See below, p. 342.

p. 236, l. 8, . . . This is corrected below, p. 343.

p. 239, l. 5 from end, . The Gisburn which St. Malachy visited was not the place of that name near Ribchester, but another Gisburn (now Guisborough), near the mouth of the Tees. Hence the argument of this paragraph is fallacious, and the itinerary of the third journey from Low Borrow Bridge onwards (p. 241) is incorrect. See *Scottish Historical Review*, xviii, 81.

p. 241, ... *Omit* Longtown. St. Malachy probably went from Annan to Carlisle by the Solway sands (*ib.* p. 80). The distance is somewhat less by this route, but the rate of progress would be slower.

p. 242, ll. 13–16, . . It should have been stated that these statements are based on a kind and valuable communication of Dr. R. L. Poole.

PROCEEDINGS

OF

THE ROYAL IRISH ACADEMY

PAPERS READ BEFORE THE ACADEMY

I.

THE CHARTERS OF THE CISTERCIAN ABBEY OF DUISKE IN THE COUNTY OF KILKENNY.

TRANSCRIBED BY

CONSTANCE MARY BUTLER,

AND EDITED BY

JOHN HENRY BERNARD, D.D., D.C.L.,
Archbishop of Dublin.

[Read November 12, 1917. Published July 26, 1918.]

CONTENTS.

I.—Preface.

The Charters which are printed for the first time in this volume are preserved among the muniments of the Marquess of Ormonde in the Evidence Room of Kilkenny Castle. They were selected from that great collection of mediaeval documents, and transcribed by Lady Constance Butler in the years 1913 and 1914. The task of transcription presented serious difficulties, as many of the deeds are faded and worn; and great patience, as well as keen eyesight, was needed. I was able to render some assistance, and Dr. H. F. Berry, I.S.O., kindly read through a first draft of the transcript; but the credit of the work is due to Lady Constance Butler.

These Charters constitute a very full record of the growth of the great Cistercian Abbey of Duiske, or Graiguenamanagh, in the county of Kilkenny, during the first hundred years of its existence; and they also provide some

information as to its fortunes during the fourteenth and fifteenth centuries. I have endeavoured to place the documents in chronological order; but as in many cases the date has to be deduced from the names of the witnesses, it is not always possible to be precise. It has seemed worth while to add some notes as to the Anglo-Norman barons and their retainers who appear in the Charters, as many of their descendants are still to be found in the South of Ireland. Not much is known about the monastery of Duiske, except what these Charters reveal; but I have supplied in my commentary any details that can be learnt from Clyn's Annals, or (for the later period) from the State Papers. It is the hope of Lady Constance Butler and myself that the material here collected may be serviceable to students of Irish history.

We desire to thank Mr. Goddard Orpen for some valuable notes, and Mr. Manning Robertson, A.R.I.B.A., for the map which he kindly drew for the purposes of this memoir. Dr. Carrigan has been good enough to annotate the Terrier of the lands of Tulachany (no. 107); and Mr. E. C. R. Armstrong has given kind help in connexion with the seals attached to the Charters. We are also under obligation to the President and Council of the Royal Society of Antiquaries of Ireland for permission to reprint the plan of the abbey ruins, and the careful note upon them, published in their *Journal* by the late Dr. Robert Cochrane.

II.—Abbreviated Titles used in the Notes.

C. D. I. . Calendar of Documents relating to Ireland (5 vols.), edited by Sweetman.

C. M. A. . Chartularies of St. Mary's Abbey, Dublin (2 vols.), ed. J. T. Gilbert (1884).

Carrigan. . History and Antiquities of the Diocese of Ossory (4 vols.), by W. Carrigan, D.D. (1905).

Chartae. . Chartae, Privilegia et Immunitates, &c., printed by the Irish Record Commission (1889).

D. N. B. . Dictionary of National Biography.

E. . . . Extracts from the Registers of Duiske Abbey, contained in the MS. E. 3. 10 (578), Trinity College, Dublin.

F. . . . Extracts from the same Registers, contained in the MS. F. 4. 23 (654), Trinity College, Dublin.

L. . . . Extracts from the same Registers, contained in the MS. Lansdowne 418, British Museum.

R. S. A. I. . Royal Society of Antiquaries of Ireland.

R. T. A. . Register of St. Thomas' Abbey, Dublin, ed. J. T. Gilbert (1889).

III.—INTRODUCTION.

The Cistercian modification of the Benedictine Rule is due to an Englishman, St. Stephen Harding, the parent house of Citeaux or Cistercium, near Dijon in Burgundy, having been established for Benedictines in 1098 by St. Robert of Molesme. The Cistercian Rule took shape in 1107; and, like that of the Cluniacs, although in different fashion, it was a departure from the Rule of St. Benedict, in so far as it aimed at the close organization of the communities which adopted it. A main feature of the unreformed Benedictine system was the independence of each monastic house; but the Cistercians became an Order in the strict sense, under the pre-eminence of the abbot and convent of Citeaux, and claiming exemption from the authority of the local bishops. All Cistercian houses were administered in the same manner, and the superiors were under obligation to attend yearly chapters, each convent being moreover subject to visitations at the pleasure of the Abbot of Citeaux. The four abbeys of La Ferté,[1] Pontigny,[2] Clairvaux,[3] and Morimond were accorded a position of special dignity, and were regarded as peculiarly the "daughters of Citeaux." They were, in fact, the oldest of its daughter-houses.

The Cistercian Rule was one of great austerity. The members of the order wore neither linen nor furs, and from their dress of undyed wool were often called the "White Monks." They lived on a vegetable diet, animal food being forbidden in their establishments. As with the Benedictines, it was enjoined by the Rule that the abbeys should be so located as to contain within their precincts water-courses, mills, and gardens, so that they were independent of supplies from without. It was often remarked in later times that the habit of the Cistercians was to build their houses in valleys, as the Benedictines did on hill-tops.[4]

The system spread rapidly, the first English house being established in 1129 at Waverley in Surrey. The formal introduction of the order into Ireland is due to St. Malachy of Armagh, who was the intimate friend of St. Bernard, the famous abbot of Clairvaux (d. 1153). St. Malachy had noticed with admiration the methods of the Cistercians at Clairvaux, and he sent some Irish monks there to study its peculiarities and advantages. The letters

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[1] In the diocese of Châlons in Burgundy.

[2] About 12 miles from Autun, in the diocese of Auxerre. It was here that Thomas Becket found asylum.

[3] This abbey, and that of Morimond, were in the diocese of Langres, and were founded in the same year, 1115. St. Bernard was the first abbot of Clairvaux.

[4] Cf. the old verse:

Bernardus valles, colles Benedictus amabat,
Oppida Franciscus, magnas Ignatius urbes.

from St. Bernard to St. Malachy on the subject are numbered 315, 316, 317 in the *Epistolae* of the former.[1] As a consequence of this movement, the Abbey of Mellifont, near Drogheda, was founded about the year 1142. Mellifont had many "daughters," among them Bective in Meath, and Baltinglass in co. Wicklow, which in its turn was the "mother" of Jerpoint in co. Kilkenny; and the Cistercian houses grew and multiplied in Ireland during the latter half of the twelfth century, some twenty-five convents of the order being in existence by the year 1200. St. Mary's Abbey, Dublin, had been affiliated to the Cistercian house of Savigny in Normandy as far back as 1139, a date prior to the foundation of Mellifont. Most of the Irish Cistercian houses, however, were founded by the Anglo-Norman adventurers who came over to Ireland in the train of Strongbow and his successors after 1172; the lavish grants of lands made to them by their founders being acts of piety or of reparation after the manner of the age. Thus Dunbrody[2] in co. Wexford was founded from Buildwas in Shropshire by Hervey de Montmorency; and Tintern founded by William Earl Marshal in the same county derived its name from the more famous Tintern in Monmouthshire. We are here concerned more particularly with the Abbey of Duiske, now Graiguenamanagh, in co. Kilkenny, which was founded from the Abbey of Stanley in Wiltshire by William Earl Marshal about 1204.

IV.—The Charters of Killenny.

To exhibit the history of Duiske Abbey, we must begin with some documents which concern Jerpoint and Killenny, two Cistercian houses in co. Kilkenny, whose relations with Duiske form the subject of many subsequent charters.

The abbey of Jerpoint, whose splendid ruins testify to its former greatness, was founded from the abbey of Mellifont in the latter half of the twelfth century. The date of its foundation, as we shall see, must have been some years prior to 1165, although it has been put as late as 1180.[3] It was a flourishing convent, and Dermot O'Ryan, Chief of Idrone, granted to it certain lands for the purpose of establishing and endowing a daughter house at Killenny, which was in his territory. His Charter is not extant, although we have preserved a *précis* of an Inspeximus and Confirmation of it by one of

[1] They are reprinted in Ussher's "Sylloge" (*Works* iv. 535 ff.).

[2] Dunbrody was subsequently affiliated to St. Mary's, Dublin, and the Charters of both houses have been published in Sir J. T. Gilbert's *Chartularies of St. Mary's Abbey* (1884) (CMA).

[3] By Sir James Ware in his *Caenobia Cistercensia Hibernica* (cf. CMA ii, 217, 218). The date of its foundation is discussed by Carrigan, iv, 281 ff.

his descendants, two and a half centuries later.[1] But we have a Confirmation of it granted by Dermot MacMurrough, King of Leinster, whose liegeman O'Ryan was, and with this we begin:—

i.

Confirmation by Dermot MacMurrough, King of Leinster, of a grant of lands made by his liegeman Dermot O'Ryan to the convent of Jerpoint, for the purpose of establishing a daughter house of the Cistercian Order at Killenny.

Dated at Gowran.

Uniuersis Sancte Matris Ecclesie filiis archiepiscopis episcopis abbatibus presbiteris regibus ducibus comitibus et omnibus tam laicis quam clericis in Christo fidelibus Diarmetius nutu dei rex Lagnensium salutem et pacis spiritum.

Notum facimus presentibus et posteris quod nos terram quam Diarmait Uarrian dux Uanronai per nostram licentiam in remissionem peccatorum suorum Felici abbati de Ossarge et omni eiusdem loci conuentui ad monasterium in honore beatissime Dei genetricis semperque uirginis Marie sanctique Benedicti abbatis tradidit construendum, confirmamus manutenemus et nostri sigilli confirmatione munimus.

Hec igitur est terra monachis iure perpetuo tradita, Duninni, Ceall Mochomoc, Muleann Morain, Ardsemdilli, Bale O'Chianugain, Rath Inphoboil, Breslach, Ceall Nisi, Bale meic Marcaig, Druim ro, Bale meic Laurada, Bale Ogaillin, Baile Omaille, Leis Meic Mellelua, cum omnibus suis pertinensiis† in aquis in pascuis in siluis.

Nam Ceall Lainne, cum omnibus adhuc suis pertinentiis, scilicet Raith Membram et Ardpetraim, tam in fluminibus quam in pratis et nemoribus, Donatus, uenerabilis Lethglennensis episcopus, ad grangiam faciendam, sicut melius de nobis habuit perpetualiter, cum nostra licentia, prefatis monachis quibus de sua parrochia in sui presentia, predicta terra, scilicet Dunnini etcetera, fuit data, tradidit.

Interdicimus ergo ne aliquis hominum de prefatis terris ausu temerario ab eisdem monachis et eorum in perpetuum successoribus nec passum pedum auferre, nec uiolentiam monasterio, si ibi fuit, uel eius grangiis, si habuit, inferre, aut ignem apponere, siue aliquid ab eis furtim abstrahere presumat; sed omnia in pace ecclesie integre et illibata dimittere.

Quia siquis contra nos in dei ecclesiam manum forefaciendo audacter porrexerit, res suas si habuerit, uitam si non, irreuocabiliter perdet.

Datum apud Belachgaurain.

Teste, Laurentio Dubliniensi archiepiscopo; Donato Lethglennensi episcopo; Felice abbate de Ossarge; Murchad filio Murchada; Murcherdach

[1] See p. 139.

filio eius; Domnallo Caimanach; Diarmait Uarrian; Padin Uaheda; Murchad Uabrain; Dalbach eiusdem filio; et Uonncuan Ua Diarmada; et Amleib Mac Cotaltain.

From this instrument (of which there are two summaries in the Extracts from the Duiske Registers which we call E) the seal has disappeared.[1] Its date can be fixed with some precision, as we know something of nearly all the persons mentioned, and we shall find that it must be placed between 1162 and 1165.

Dermot MacMurrough, King of Leinster, died in 1171.

Dermot O'Ryan (Diarmait Uarrian), Chief of *Idrone* (Uanronai), a liegeman of King Dermot, was slain in 1171.[2] *Idrone* is now a barony in co. Carlow, but at this time included that part of the dioceses of Kildare and Leighlin which is to the west of the river Barrow. *Killeasy* (Ceall Lainne) was in the O'Ryan country, in the townland of Old Abbey, now Barrowmount, in the civil parish of Grange Silvae and the diocese of Leighlin. No remains of the abbey buildings can now be traced, but they were probably of no great magnitude or consequence at any time.

Only a few of the lands granted by Dermot O'Ryan for the purpose of the new monastery can be identified. *Duvanna* is Doninga, a townland in the parish of Grange Silvae; *Druim ro* is now Mount Loftus in the parish of Powerstown.

The first witness to the Charter, *Laurence, archbishop of Dublin*, was the famous St. Laurence O'Toole (1162–1180). He was King Dermot's brother-in-law, which accounts for his presence.

Donat, bishop of Leighlin, the date of whose accession is uncertain, but probably prior to 1152, died in 1181. Inasmuch as Killenny was situated in the diocese of Leighlin, the attestation of the bishop of that diocese was specially desirable.

Felix, abbot of Ossory, is Felix O'Dullany, who was the first abbot of Jerpoint, before he became bishop of Ossory in 1178. He died in 1202, and was buried at Jerpoint Abbey, where his altar-tomb, with his effigy in relief, is still to be seen.

Murchad filius Murchadi, i.e. Murrough mac Murrough, was King Dermot's brother; his son *Muirchertach* died in 1193.

Donnell Cavanagh, i.e. Donnell Kavanagh, was King Dermot's illegitimate son. He was brought up at Kilcavan, near Gorey (*Cill-Caemhain*), and hence was surnamed *Caemhanach* or Kavanagh. He is the eponymous ancestor of the Clan Kavanagh. He was killed, according to the *Annals of Ulster*, in 1175.

Paidin Uaheda, or O'Hea, who is described in the *Annals of Ulster* as "the candle of all O'Kinselagh," is said by the same authority to have been killed in 1165.

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[1] This charter has been reproduced in Gilbert's *Facsimiles of National Manuscripts of Ireland* (Pt. II, plate lxiii), but the editor, by the unfortunate insertion in his printed text of the name *Duiske* after 'monasterio,' in l. 24, instead of the words 'si ibi fuit,' was lead to misinterpret it as the Foundation Charter of Duiske Abbey. This is a mistake which has been reproduced in many books. As we shall see, the abbey of Duiske was not founded for nearly forty years after the date of this charter, in which the name 'Duiske' or 'Graigue na managh' does not occur.

[2] Orpen, *Ireland under the Normans*, i, 231.

[3] The exact position of Killenny was first determined by Carrigan (iv, 279).

Murcdad Uabrain, or Murrough O'Breen, Chief of the Duffry (a district between Enniscorthy and the Blackstairs mountain), and his son *Dalbach*, were beheaded by Strongbow in 1171.[1]

It is thus plain that the Charter must have been executed between 1162, the year of Archbishop Laurence's consecration, and 1165, the year of Paidin O'Hea's death.

We have in the Extracts from the Duiske Registers (E) a *précis* of this instrument, in which the names of some additional witnesses are given. To be precise, we find in (E), first, a *précis*, headed "Charta de Kyllyny," with the witnesses as set out in the original deed, which is printed above. This is followed by a Confirmation of it executed in the year 1424 (see p. 139, below); and then comes a second *précis*, headed "Confirmatio regis Lagenie de Bentraye," with an ill-spelt list of witnesses as follows :—

"Laurentio archiepiscopo Dublin.; Donato Lechglen. episc.; Felice abbate de Ossarge; Murchad filio Murchada, regis Dermitii germano; Murchertach filio eius; Donaldo Caemanach; Padyn Huaeda; Murchad Huabroyn; Dalbach eiusdem filio; Dullayng Huanuallā; Diarmayd Huaryā; Ainlayb mac Collatain; Kekach Huacoscrayg; Kerill mac Gillananac; Domnall Ruad̄; Gillapadrayg Huainacada; Donchad Huaīnedāyg; Diarmaid Huafiachain; Dullayng mac Legussa; Florentio regis notario."

Eleven of these names are given in the Charter which has been printed above, but there can be little doubt that the additional persons named in this *précis* were also present, and that two copies (both original) of this important Instrument were preserved among the archives of Duiske. The last-named witness, "Florence, the King's notary," is, no doubt, the same scribe as the Florence who attested King Dermot mac Murrough's foundation Charter of the Augustinian Abbey of Ferns about 1158.[2]

The spelling of the Irish names is so corrupt in this *précis* that they are hard to identify. I am indebted to Mr. Goddard Orpen for the acute and learned suggestions as to the identity of these chieftains, which are here offered.

Dullayng Hua Nuallā was probably Dunlang O'Nolan (Ua Nualláin). The O'Nolans were chiefs of the territory known as Fotharta Fea, now the barony of Forth, co. Carlow; and two men called Dunlang appear at this period in the pedigree of these chiefs in the *Book of Leinster*.[3]

Ainlayb mac Collatain may be a corrupt form of Amlaf mac Uallacain, a name which has been anglicized 'Coolahan.'

Kekach Huacoscrayg is too corrupt to emend. But O'Coscraigh was a chief in co. Wicklow.[4]

Kerill mac Gillananac may be for 'Cerball mac Gillanameach,' i.e. Carroll son of Gilla-na-n-each, or Servant of the Horses.

Domnall Ruad and *Gillapatraic* are given in a pedigree headed 'Hua Murchada' in the Book of Leinster[5] as the two sons of Donnchad. Thus we

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[1] Orpen, *Ireland under the Normans*, i. 237. [2] See Hore's *Ferns*, p. 181.
[3] *Facsimile*, p. 337. [4] *Topographical Poems*, pp. 75–89. [5] *Facsimile*, p. 337, col. ii.

must suppose Huamacada in the *précis* to be a corruption of Hua murchada, or O'Morchoe.

Donchad Huaīnēdayg perhaps represents Donchad Hua-Cinnedigh or O'Kennedy.

Diarmaid Huafiachain was probably Diarmaid Hua Riachain (O'Regan). Maurice Regan was the name of King Dermot's secretary.

Dullayng mac Legussa may stand for 'Dunlang mac Laigsigh.' The 'Laigsi' were the men of Leix, and 'mac Laigsigh' is probably a mere patronymic.

Our next reference to the Abbey of Killenny is found in an entry in the Extracts from the Register of Duiske (E):

"Bulla confirmat terram et priuilegium monasterii Sanctae Mariae Vallis Dei instituti Cisterc: per Lucium Papam. Dat. Veletri per manum Alberti Presb. Cardinalis et Cancellarii 15 Kal. Mart. Indict. 1, Incarnationis Dominice an. 1182, Pontificatus Lucii P. iii an. 2."

This Charter granted by Pope Lucius III to the monastery of Killenny or "Vallis Dei" is not now extant, but reference is made to it in no. ii.

In the same Extracts from the Register of Duiske (E, F, L) mention is made of a Charter given about the year 1200 by Miles fitz Bishop to the abbot[1] of Killenny, granting him the town of Techomichan. This Miles or Milo was the son of David Fitz Gerald, bishop of St. David's (who was the son of Gerald Fitz Walter, Constable of Pembroke, by Nesta, daughter of Rhys ap Tewdur, Prince of South Wales). Milo fitz Bishop or fitz David came to Ireland with the first band of Anglo-Normans in 1169, and Earl Richard de Clare (Strongbow) made him a grant of Overk in Ossory.[2] He appears as a witness to the Charter granted to the city of Kilkenny[3] by William Marshal the Elder (Earl Richard's son-in-law), and also to the Charters nos. 3, 4, below.

His Charter to the abbot of Killenny, no longer extant, was witnessed by Felix, bishop of Ossory (1178–1202); Albin, bishop of Ferns (1186–1223); John, bishop of Leighlin (1198–1201), and Geoffrey, seneschal of Leinster.

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[1] The *précis* in F has 'X^mo Ab. de Valle Dei,' which has been read 'to the *tenth* abbot of de Valle Dei.' But it is unusual in grants to specify the place in the succession list of an abbot or prior, and it is probable that a proper name, such as *Christinus*, is concealed behind the contraction. There could hardly have been ten abbots before 1201.

[2] See Burtchaell, *The Geraldines of Co. Kilkenny*, Journal R.S.A.I., 1893, p. 179, and C.M.A. ii, 406.

[3] *Chartae, Privilegia*, &c., p. 33.

ii.

Protection granted by John of Salernum, Cardinal priest of St. Stephen in the Caelian Mountain, and Papal legate, to Thomas abbot of Killenny and his convent, confirming the monks in possession of their lands, and giving them freedom from tithes, the right of electing their abbot, and other privileges.

Dated at Dublin.

Johannes dei gratia tituli Sancti Stephani in Celio Monte, presbyter cardinalis, apostolice sedis legatus, dilectis filiis Thoma† abbati monasterii Sancte Marie de Valle Dei eiusque fratribus tam presentibus quam futuris regularem uitam professis in perpetuum.

Quos sanctitas religionis et humilitas atque incessabilis deuotio satis in conspectu Dei et hominum gratiosos et commendabiles facit existere, eos immerito sacrosancta Romana ecclesia specialiter diligit et intime caritatis brachiis feruenter amplectitur, et ab omnium uexationibus et iniuriis obnixe uult et mandat esse defensas.

Hinc est quod dilecti in domino filii, uestris iustis desideriis et dignis postulationibus libenter assensum prebemus, et iuxta domini pape Lucii . . . statutum, quod diligenter inspeximus, et plurimum commendauimus, prefatum monasterium beate dei genetricis semperque uirginis Marie in quo diuinis estis officiis mancipati sub beati Petri apostoli et nostra protectione de potestate legationis qua in Hibernia partibus fungimur suscepimus et presenti† scripti priuilegio communimus.

Inprimis siquidem statuentes ut ordo monasticus, qui secundum deum et beati Benedicti regulam et institutionem Cisterciensium fratrum in eodem loco institutus esse dinoscitur, perpetuis ibidem temporibus inuiolabiliter obseruetur: Preterea quascunque possessiones quecunque idem monasterium in presentiarum iuste et canonice possidet, aut in futurum concessione pont[if]icum, largitione regum uel principum, oblatione fidelium seu quibuslibet aliis iustis modis prestante domino poterit adipisci, firma uobis uestrisque successoribus et illibata permaneant.

In quibus hec propriis duximus exprimenda uocabulis: scilicet, locum ipsum, in quo memoratum monasterium Vallis Dei situm est, Cellonascaik cum omnibus pertinentiis suis, Gra[n]gia Cellainni cum suis pertinentiis, Grangia Mulendinum Morain cum suis appenditiis, Grangia Dunnini cum suis appenditiis, Grangia Loch Ubrinn cum suis appenditiis, Grangia Cech Meccuain cum suis appenditiis, Grangia Cellachadcona cum suis appenditiis.

Sane laborum uestrorum quas propriis manibus aut sumptibus colitis siue de nutrimentis uestrorum animalium nullus omnino a uobis decimas presumat exigere.

Liceat quoque uobis clericos vel laicos e seculo fugientes liberos et abso-

lutos ad conuersionem recipere et in uestro monasterio absque contradictione aliqua retinere.

Prohibemus insuper ut nulli fratrum uestrorum post factam in loco uestro professionem fas sit de eodem loco absque licentia magistri sui discedere, discedentem uero absque communium litterarum uestratum cautione nullus audeat retinere.

Paci quoque et tranquillitati uestre paterna sollicitudine prouidere uolentes, auctoritate legationis qua fungimur prohibemus ut infra clausuras locorum seu grangiarum uestrarum nullus uiolentiam uel rapinam siue furtum committere aut ignem apponere seu hominem capere uel interficere audeat.

Obeunte uero te nunc eiusdem loci abbate uel tuorum quolibet successorum nullus ibi qualibet subreptionis astutia seu uiolentia preponatur, nisi quem fratres communi consensu uel fratrum pars consilii sanioris secundum deum et beati Benedicti regulam et institutionem Cisterciensis ordinis prouiderit eligendum.

Ex apostolica ergo et legationis auctoritate qua fungimur per presentia scripta decreuimus, ut nulli liceat omnino hominum prefatum monasterium temere perturbare aut eius possessiones auferre uel ablatas retinere minuere aut quibuslibet molestationibus fatigare sed omnia integra et illibata seruentur eorum pro quorum gubernatione ac sustentatione concessa sunt usibus omnimodis profutura, salua nimirum apostolice sedis auctoritate.

Si qua igitur ecclesiastica secularisue persona in futurum hanc nostre constitutionis paginam sciens contra eam temere uenire temptauerit secundo tertio ne commonita, nisi reatum suum digna satisfactione correxerit, potestatis honorisue sui dignitate careat, reamque se diuino iudicio existere de perpetrata iniquitate cognoscat, et a sacratissimo corpore ac sanguine dei et domini redemptoris nostri Jesu Christi aliena fiat, atque in extremo examine districte ultioni subiaceat. Cunctis autem eidem loco sua iura seruantibus sit pax domini nostri Jesu Christi quatinus et hic fructum bone actionis percipiant et apud districtum iudicem premia eterne pacis inueniant. Amen.

Datum Dublin :

John of Salernum (Giovanni di Salerno) was papal legate in Ireland, and held a Synod at Dublin in the year 1202,[1] which may therefore be taken as the date of this instrument. His seal is still attached (see Plate II). The legend is much injured, but seems to have been as follows :—

S' IHS D' SAL'N(O) SCI STEP(HANI) I CEL' MOTE PBRI (CARD')

Of the granges or farms specified, we have already had in no. i, *Cellainni* Killenny), *Mulendinum Morain*, and *Dunnini*.

The abbot was *Thomas* ; as we learn from Charter 6, the abbot's name in 1204 was Iman.

[1] Annals *Loch C.* ; cf. C.D.I. i, 168 ; C.M.A. i, 113 ; and R.T.A. 223.

iii.

Grant, by Alan Beg, for the good of his soul, to the abbey of Killenny, of an acre of land with the houses which the monks have possessed for a long time, and a fishpond which he gives to the infirmary of the convent.

Sciant presentes et futuri quod ego Alanus Beg dedi et concessi et hac mea presenti carta confirmaui pro salute anime mee et antecessorum meorum Deo, et beate Marie et Abbati de Valle Dei, et monachis ibidem deo seruientibus, unam acram terre cum domibus quas multo tempore possiderunt, cum una piscaria quam dedi infirmitorio predictorum monachorum tenendum† et habendum† de me et heredibus meis tibi et successoribus suis in puram et perpetuam elemosinam [libere] et quiete integre et plenarie honorifice et pacifice et absque omni secula[ri e]xactione.

Et ut hec donatio mea rata et inconcussa permaneat illam sigilli mei munimine corroboraui.

Hiis testibus, Ranulfo rectore ecclesie de Baligauran, Thoma Buluin, Symone capellano, Thoma cisore de Balligauran, Willelmo capellano, qui hanc cartam scripsit, et multis aliis.

This Charter is undated, but it was probably executed about the year 1220. Alan Beg's seal is still attached (see Plate II).

The name *Beg* (or Beck) is the Irish equivalent of Parvus or le Petit, and one William le Petit is said to have been Chief Governor of Ireland in the last decade of the twelfth century. *Alan Beg*, who appears here and in Charters 13, 14, was perhaps of the same family.[1] His wife's name was Nesta.[2] He held lands in the baronies of Idrone and of Forth, co. Carlow; and he was a witness to various charters by which churches in the diocese of Leighlin were appropriated to St. Thomas' Abbey, Dublin, between the years 1200 and 1205.[3] He also witnessed a Charter of St. Mary's Abbey about 1202.[4]

The three Charters of Alan Beg printed in this collection (nos. iii, 13, 14) are all witnessed by *Ralph the rector of Gowran*; and the Charter now before us is also witnessed by *Thomas Cisor*, or Thomas the Tailor, of the same place. Alan's property was in that neighbourhood.[5]

Ralph, the rector or parson of *Gowran*, appears again in that position in 1227 and 1228.[6] He was a witness to Charters of St. Thomas' Abbey before the year

[1] The family of le Petit had close associations with Meath. Ralph le Petit was archdeacon of that diocese for nearly forty years, and became bishop in 1227. He may be the 'Ranulfus' who is mentioned along with 'A. Beg' (possibly the Alan of this Charter, but more probably the Adam Beg who witnessed charters printed in R.T.A. 21, 22), as interested in property in Meath, in a charter of St. Mary's Abbey (i, 158) granted before 1194 and confirmed in 1201. But he is not to be identified with Ralph, the rector of Gowran.

[2] Charter 13. [3] See R.T.A. 105, 107, 113. [4] C.M.A. i, 113.

[5] See no. 14, below, for his land at Ullard. [6] See Charters 13, 23, 28, below.

1228.[1] His tombstone, a huge slab with the recumbent effigy of an ecclesiastic in vestments, is still to be seen in Gowran Church, with the curious inscription in hexameters:

> "Dum uixit sanus, Radoulfus erat Julianus
> Dum uixit sospes, Ruptis fuerat pius hospes,
> anno domini MCCLIII XIII Kal. April."

This inscription gives the date of his death, 1253, and the appointment of his successor is dealt with in a Royal letter of 11 Feb., 1253–4.

These are all the records that remain of the earlier days of the little abbey of Killenny, which was an Irish house founded by an Irish chieftain. We have now to trace the history of the more important abbey of Duiske or Graiguenamanagh founded by an Englishman for English monks, which was soon to absorb the smaller and poorer monastery, established forty years before the richer house.

V.—The Charters of Duiske.

Richard Fitz Gilbert, earl of Clare, better known as 'Strongbow,' was the first of the great Anglo-Norman adventurers in Ireland. He arrived in the country in 1170, at the invitation of Dermot Mac Murrough, King of Leinster, who was at the time hard beset by his rivals; and he married Dermot's only daughter Eva, thus becoming, at Dermot's death, the overlord of the Irish Kingdom of Leinster. When he died in 1176, he left no son; and his only daughter, Isabella, married in 1189 William Marshal, earl of Pembroke, who thus became master of a splendid inheritance. William Marshal was a truly great man, who knew how to rule; and his companions and helpers in the difficult task of reducing Leinster were, many of them, capable and vigorous in their administration of the lands which they held as his feudatories.

It was through these feudatories that William Marshal governed his fief for a good many years, and his only prolonged residence in Ireland was from 1207 to 1213.[2] His policy was always directed towards the establishment of English law and custom, both in civil and ecclesiastical affairs; and to this end he gave charters after the Anglo-Norman fashion to the principal towns in his territory. He brought monks from England to the Cistercian houses which he endowed. One of these was Tintern Minor in co. Wexford, founded from the greater Tintern in Monmouthshire, and the other was the abbey of Duiske or Graiguenamanagh in Kilkenny, which he filled with monks from the abbey of Stanley in Wiltshire.

[1] R.T.A. 132, 133, 134.

[2] See Orpen, *Ireland under the Normans*, ii, 207.

In the Chronicles of the abbey of Stanley, there is an entry which tells of the beginning of the abbey of Duiske:

"A.D. mcciiij. Hoc eodem anno electus est conuentus nouus in Stanleye in Wiltesira cum abbate proprio, scilicet uenerabili uiro, Radulfo, x Kalendas Augusti, et in Hyberniam missus in prouinciam Ostricensem[1] ad locum qui uocatur Sancti Saluatoris, quem dedit eis bonae memoriae uir Willelmus Marescallus comes de Penbruc, cum aliis terris plurimis.

Eodem anno depositus est dominus N[icholaus] abbas Stanleyæ a capitulo Cistercii, eo quod duxit conuentum in Hyberniam absque licentia capituli."[2]

We must put beside this entry (made originally by a Cistercian monk of Stanley) another from the Extracts from the Duiske Register (F):

"1204. Conuentus de Stanleya uenit in Hiberniam, qui primo habitauit apud Lochmeran iuxta Kilkenniam, deinde apud Athnamolt, postea apud Castrum, ultimo in loco ubi nunc sunt, dicto Duisque alias Sancti Saluatoris."

These notices seem to indicate that there were two migrations of monks from Stanley to the county of Kilkenny. The first of these was attended by some irregularity and did not receive the sanction of the Cistercian chapter; but the second was fully authorized and led to the establishment of a daughter house at Duiske, on ground given by William Marshal. In any case, monks from Stanley first settled in Loughmeran, a townland about two miles north of the city of Kilkenny, which formed part of Earl Marshal's castle farm. Thence they moved to Athermolt or Annamult, as it is now called, which is situated about six miles south of Kilkenny, to the west of the river Nore. Dr. Carrigan[3] thinks that traces of its occupation by the monks may still be seen at Annamult, in the ruined building locally called the 'Friars' Barn.' As we shall see (p. 17), Annamult afterwards became annexed to the abbey of Duiske as a grange or farm; so that it is not surprising that the memory of the monks should have lingered there, but that they should be confused in local tradition with the friars or mendicant orders is curious.

The next halting-place, mentioned in the Duiske Registers above quoted as 'Castri,' was Grange Castri near Tulachany, now in the parish of Grange, adjoining Castleinch, a little to the north-west of Annamult. All these places were in William Marshal's territory, and were subsequently granted by him to Duiske Abbey. Probably the Cistercians from Stanley occupied them only for a short period, while the abbey buildings were being erected in the east of co. Kilkenny.

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[1] I.e. Ossoriensem; see p. 25, *infra*.

[2] *Chronicles of the reign of Stephen, Henry II,* &c., ed. R. Howlett (Rolls Series), vol. ii, p. 508; the quotation is taken from MS. Bodl. Digby 11.

[3] Carrigan, iii, 373.

Bun Duiske (which is the Irish for 'the Mouth of the Black Water') is beautifully situated on the western bank of the river Barrow, which divides the county of Kilkenny from that of Carlow. It is now called Graiguenamanagh, or 'the Grange of the Monks.'[1] We learn from Charter No. 6 that a cemetery was consecrated here for the monks on 6 June, 1204, so that the land must have been granted to the new convent by William Marshal before that date, or (at any rate) a promise must have been made by him upon which the monks felt they could rely with confidence.

The earliest extant charter embodies a quittance of claim upon land at Duiske, which was essential as a preliminary to its transfer to the convent.

1.

Quit claim by Geoffrey Fitz Robert in respect of the lands of Duiske and Annamult to William Marshal, earl of Pembroke, and his Cistercian monks from Stanley, for the abbey to be founded in honour of the Saviour.

Galfridus filius Roberti omnibus amicis et hominibus suis ad quos presens scriptum peruenerit salutem.

Sciatis quod ego relaxaui et quietam clamaui omnem demandam cum omni iure et calumpnia tota quam habui in terra de Dowisky, et in terra similiter de Athermolt, domino meo Guillelmo Marescallo Comiti Pembroc et monachis suis Cisterciensis ordinis de Stanleg, de me et heredibus meis sine omni reclamatione in perpetuum, ad abbatiam suam fundandam in honore Sancti Saluatoris.

Et ut hoc ratum permaneat et stabile in perpetuum in testimonium predicte relaxationis sigillum meum presenti scripto apposui.

Hiis testibus Hugone episcopo Ossoriensi, Johanne Marescallo, Radulfo Bloet, Johanne Lupo, Nicholao Auenel, Thoma de Rocheford, Willelmo de Boseuille, Eustacio capellano, Thoma filio Antonii, Ricardo Fan(nin), Odone Archidiacono, Herberto et Michaele, clericis comitis, et aliis.

William Marshal, earl of Pembroke, did not take up his fief in Ireland until early in 1207,[2] but this instrument was probably executed before his arrival, and may be dated in the year 1204. The grantor, *Geoffrey Fitz Robert*, was one of William Marshal's knights and at one time his seneschal. Later, he attested the Earl's charters to Kilkenny and to Dunbrody Abbey,[4] and he died about 1211.[5] He was Baron of Kells and the founder of Kells Priory for Austin canons, whom he imported from Bodmin in Cornwall. One of these was *Hugh Rufus*, or le Rous,

[1] Hogan's *Onomasticon* gives a different derivation, viz., that Graiguenamanagh = Graig-na-breathnach, 'the Grange of the Britons,' i.e. the Welsh colonists who settled there.

[2] Orpen, *Ireland under the Normans*, ii, 209.

[3] *Chartae*, p. 34. [4] C.M.A. ii, 160. [5] Orpen, *l.c.*, ii, 266.

who was the second Prior and became bishop of Ossory in 1202, being the first Anglo-Norman prelate who governed that see. He was in England in June, 1204 (see Charter 6), and apparently did not return until 1207,[1] so that this instrument, which was evidently executed in Ireland, is perhaps prior to the former date. He died in 1218, and was buried at Kells.

John Marshal, the second witness, was William Marshal's nephew, and had licence to go to Ireland about April, 1204, and to remain there on the earl's service.[2] He witnessed charters granted by William Marshal to St. Thomas' Abbey, Dublin,[3] to Tintern Abbey,[4] and to the city of Kilkenny,[5] as well as the charter given to Carlow by William Marshal the second.[6] He died in 1235.[7]

Ralph Bluet was a witness to a charter of Richard Fitz Gilbert (Strongbow) before 1176,[8] and also to some grants made by William Marshal.[9]

John Lupus, or Wolf, or de Low, may have been a kinsman of an ecclesiastic of the same name who was Dean of Ossory at the beginning of the fourteenth century, and who appears in Charter 94. Cf. p. 42.

Nicholas Avenel may perhaps be the man of that name who held land at Kilferagh, co. Kilkenny, of Richard de Clare, earl of Gloucester, one of the heirs of the Marshal family, in 1247.[10]

Thomas de Rochfort held lands by similar tenure at the same date, in Lavertach, co. Kilkenny.[11] He was a fellow witness with Ralph Bluet to two charters mentioned already.[12] It is possible that he is to be identified with Thomas de Rochfort, Constable of Bristol, who appears in 1204.[13]

Eustace, chaplain, witnessed William Marshal's Protection to Dunbrody Abbey,[14] and is perhaps the same man as Eustace de Bartolomonte who appears in Charters 3 and 4.

Thomas Fitz Anthony was one of William Marshal's principal tenants, and became his seneschal, probably succeeding Geoffrey Fitz Robert in that office in 1211. He had the manor of Grenan, which was on that account called Thomastown in later times. He was a witness to several charters of William Marshal the elder and William Marshal the younger.[15] He died in 1229.

Richard Fannin witnessed William Marshal the elder's charter to Kilkenny between 1207 and 1211 ;[16] he was dead in 1234.[17] Thomas Fannin his son held Marshal lands in 1247 in Glothementhan (Clomantagh), co. Kilkenny.[18]

'*Odone Archidiacono*' does not represent the name of an ecclesiastic. Odo l'Ercedekne was one of the Anglo-Norman adventurers, whose son, Sir Stephen l'Ercedekne, married one of the daughters of Thomas Fitz Anthony, and held property in Ballyragget, co. Kilkenny. The family were proud of their descent, and in later times changed their name to 'Mac Odo,' in honour of their founder. This has been corrupted into 'Cody,' now a common surname in the south of

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[1] In April, 1207, we have a record of "letters of simple protection for Hugh bishop of Ossory" (C.D.I. i, 326). [2] Orpen, *l.c.*, ii, 207 ; C.D.I. i, 210. [3] R.T.A. 119.
[4] *Chartae*, &c., p. 80. [5] *Chartae*, &c., p. 34. [6] *Chartae*, &c., p. 38.
[7] See D.N.B. s.v. 'Marshal, John.' [8] C.M.A. i, 258.
[9] R.T.A. 137, 357 ; cf. C.D.I. i, 387, 1123, 1226, 1318. [10] C.M.A. ii, 405.
[11] *Ibid.* [12] R.T.A. 137, 356. [13] C.D.I. i, 208.
[14] C.M.A. ii, 160. [15] Cf. *Chartae*, &c., pp. 34, 38. [16] *Chartae*, &c., p. 34.
[17] C.D.I. i, 2212. [18] C.M.A. ii, 404.

Ireland. Odo l'Ercedekne seems to have died about 1217.[1] He also witnessed William Marshal's Charter to Kilkenny.

Herbert, one of William Marshal's clerks, appears as such in his Protection to Dunbrody Abbey.[2]

2.

Quit claim by Adam Fitz Sinnott in respect of his land at Annamult to his lord, William Marshal, and to the monks of Stanley, for the abbey to be founded in honour of the Saviour, it being provided that he and his heirs may for ever appoint a monk to the said abbey, who can speak the English tongue.

Omnibus ad quos presens scriptum peruenerit Adam filius Sinath salutem.

Sciatis quod ego relaxaui et quietam clamaui omnem demandam cum omni iure et calumpnia tota quam habui in terra de Athermolt, domino meo Willelmo Marescallo Comiti Pembroke, et monachis suis Cisterciensis ordinis de Stanleghe, de me et heredibus meis sine omni reclamatione in perpetuum in auxilium abbatie sue fundande in honorem Sancti Saluatoris.

Et ut hoc ratum permaneat et stabile in testimonium predicte relaxationis sigillum meum presenti scripto apposui. Hanc autem relaxationem et quietam clamationem feci in Comitatu Wesefordie.

Predicti uero monachi concesserunt michi, recepturos se monachum unum ad presentationem meam et heredum meorum successiue in perpetuum, qui tamen de lingua Anglica sit, et idoneus ad seruitium Dei in eodem monasterio faciendum; et inde michi cartam suam fecerunt.

Hiis testibus Thoma filio Antonii, Domino Johanne abbate de Voto, Willelmo Grasso, Guidone de Cultura, Roberto Mansello, Nicholao de Inteberga, Rogero filio Euerardi, Eustachio de Bertolomonte, Willelmo de Cromhale, Philippo clerico, Waltero clerico, et multis aliis.

This instrument, like the last, is prior to the foundation of the abbey of Duiske, and is about the same date, viz., 1204.

Adam Fitz Sinnott was probably of Flemish descent. His son, David, was granted lands in Shelmalier East, co. Wexford, about the year 1215 by Gerald Roche.[3] In after times Sinnott was a well-known Wexford name.

For *Thomas Fitz Anthony* see p. 15.

John Torrell was the first abbot of Tintern, which was founded by William Marshal, about the year 1200.[4]

William Crassus or *le Gras* was a member of a considerable family at Sodbury in Gloucestershire, who were kinsmen of the Marshals. There were four brothers, one of whom was bishop of St. Davids from 1230 to 1247. The other

[1] R.T.A. 133. [2] C.M.A. ii, 160. [3] See *Annuary* (1868–9), R.S.A.I., p. 52 n.

[4] See C.M.A. ii, 307. Mr. Orpen points out that William Marshal's charter to Tintern is probably later (*l.c.* ii, 207).

three—William senior, William junior, and Hamo—apparently came to Ireland in William Marshal's train, and their names often appear as witnesses to the Marshal charters.[1] One of the family held Marshal lands at Offerlane, Queen's Co., in 1247;[2] and they settled finally at Tullaroan, co. Kilkenny. They were the ancestors of the Graces of Courtstown, a well-known Kilkenny family.[3] William le Gras senior, who appears here, became seneschal of Leinster (see Charters 13, 14), and lived at any rate up to 1235.[4]

Guy de Cultura appears again in no. 9. *Cultura* may be the Latinised form of *Couture*, in the diocese of Mans, where there was a Benedictine monastery.

Nicholas de Hinteberg. The family of Hinteberg or Henneberry, as it came to be called, were settled at the beginning of the fourteenth century in the parish of Owning, in the barony of Overk, co. Kilkenny; and the townland of Ballyhenneberry preserves their name to this day. Nicholas appears again as a witness to Charter 16.

Roger Fitz Everard witnessed a charter of William Marshal the elder, being a release to Hugh bishop of Ossory, another witness being Thomas Fitz Anthony.[5]

Eustace de Bartolomonte, who appears again in Charters 3 and 4, witnessed also a grant by Thomas Fitz Anthony to Dunbrody Abbey.[6] See p. 15, above.

Philip the clerk, who appears again in Charters 9, 13, 14, was a witness to William Marshal the elder's Charters to Dunbrody[7] and Tintern.[8]

This deed is mentioned in the extracts from the Duiske registers (E), where it is described as "Relaxatio Adami filii Sinath in comitatu Wesefordiae." It had one seal, which has disappeared.

3.

Charter of Foundation, by William Marshal, earl of Pembroke, of the monastery of St. Saviour, in honour of God and of the B.V.M., for Cistercian monks at Duiske;

Granting them, for the good of his soul and that of his wife Isabella, &c., the land of Duiske, eleven carucates at Annamult, ten carucates held by Stephen de Valle near Kilkenny, a burgage in Kilkenny, one in Wexford, and one in the Island; and confirming to the abbey all that it may hereafter acquire by donation or purchase;

All the foregoing to be held with churches and chapels and all liberties and free customs, soch, sach, tholl, theam and infangenetheof, with freedom in land and water;

The monks to be exempt, themselves, their men and servants, from geld, denegeld, fines, payment of cows for heads of outlaws, and various specified exactions, aids and contributions;

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[1] See *Chartae*, &c., pp. 34, 38, 85. [2] C.M.A. ii, 405. [3] See Carrigan, iii, 498 ff.
[4] *Gormanston Reg.*, fol. 208. For other references to William Crassus senior, and Hamo Crassus, see *Royal Letters Henry III*, vol. i, pp. 291, 429, 441, 501, 525.
[5] See Inq. P.M. 54 Henry III, no. 64. [6] C.M.A. ii, 193. [7] C.M.A. ii, 158.
[8] *Chartae*, &c., p. 80.

The abbey and its tenants not to be subject to forest regulations, and the monks to have all forfeitures of their own men, jurisdiction of life and limb to be retained by the Founder and his heirs, through all whose forests they are to have free pasture for their hogs, and materials for building and firing;

Those who molest or aggrieve the monks to incur a fine of 10 marks, and the malediction of God and the Founder.

Willelmus Marescallus Comes de Pembroc uniuersis hominibus suis Francis et Anglis Walensibus et Hyberniensibus et omnibus amicis et fidelibus suis salutem.

Sciatis me pro amore dei et pro salute anime mee, et pro salute Isabelle uxoris mee ac liberorum nostrorum, et pro animabus omnium antecessorum et successorum nostrorum, fundasse in honorem dei et beate Marie uirginis et matris domini abbatiam Sancti Saluatoris de ordine monachorum Cisterciensium in terra Dowisky, et eidem abbatie cum assensu et uoluntate prenominate Luxoris mee, dedisse et concessisse et in puram et perpetuam elemosinam carta mea presenti confirmasse, totam illam terram Dowisky cum pertinentiis suis, et Hathelmolt pro undecim carrucatis terre, et terram quam Stephanus de Valle tenuit iuxta Kylkenni pro decem carrucatis terre, unum quoque burgagium in Kylkenni et aliud in Weseford et tertium in Insula.

Concessi et eidem abbatie et carta mea presenti confirmaui quicquid ei potuerit in futuro pia donatione seu uenditione fidelium, saluo seruitio meo et heredum meorum, peruenire.

Volo igitur et firmiter statuo ut abbatia prenominata, et abbas et monachi ipsius loci, habeant et teneant omnes predictas terras et tenementa prenominata, cum ecclesiis et capellis et omnibus libertatibus et liberis consuetudinibus suis, et cum socha et sacha et toll, et theam et infangenetheof, bene et in pace, libere et quiete, plenarie et integre et honorifice; in bosco et in plano, in pratis et pasturis, in aquis et molendinis, in stagnis et uiuariis, in mariscis et piscariis et gliseriis, in grangiis et uirgultis in uiis et semitis, infra burgum et extra et in omnibus aliis locis et rebus.

Et sint quieti, ipsi et homines et seruientes sui, et res et possessiones eorum, de geld et dengeld, et murdro et latrocinio, et de pecunia que ad murdrum pertinet, uel ad latrocinium, et de uaccarum solutione quam dari solebant pro capitibus utlagorum, et de scuagio et hidagio et carruagio et cornagio, et summagio et hutiban, et seyris et hundredis, et de sectis seyrarum et hundredorum, et de exercitibus et assisis, et summonitionibus, et de tesauro ducendo, et de auxiliis uicecomitum et omnium seruientium suorum, et omnibus aliis auxiliis, et de operationibus castellorum et pontium, et parcorum, et murorum et uiuariorum, et de misericordia comitatus, et de telonio, et pontagio et passagio et lestagio et stallagio et tallagio, et de clausuris, et de werdpeni, et hauerpeni, et thethingpeni, et blodwite et fichtwite et hengwite et flemeneswite.

Et sit ipsa abbatia cum omnibus tenementis suis extra forestam et omnino sine regardo forestarie. Et liceat eisdem monachis de boscho et in omni bosco suo, de aquis et in aquis suis quicquid uoluerint facere. Et sint liberi ab omni uexatione et penitus extra dangerium forestariorum et omnium aliorum seruientum terre, de pastu, uidelicet, et omnibus aliis exactionibus quas forestarii et alii seruientes terre solent exigere, et de omnibus querelis et placitis et occasionibus et consuetudinibus, et de omni seruili opere et seculari exactione.

Et habeant sibi omnimodam forisfacturam propriorum hominum suorum, sola iusticia uite et membrorum mihi et heredibus meis retenta.

Et per omnes forestas meas pasturam habeant porcorum suorum quietam a pannagio, et quicquid ad ardendum et ad edificandum habuerint necessarium.

Si quis uero uel in presenti uel in futuro quicquam de his que predicte abbatie concessi calumpniatus fuerit, non tenebuntur inde monachi respondere, sed ad me pertinebit et ad heredes meos calumpniatoribus eorum uel escambio uel alio rationabili modo satisfacere, monachisque quicquid eis donaui guarantizare et integrum conseruare.

Districte ergo prohibeo super forisfacturam meam, uidelicet decem marcarum, ne quis eos uel homines suos aut seruientes suos aut res aut possessiones eorum maliciose uexet aut grauet uel in aliqua re disturbet. Quod si quis facere presumpserit dei maledictionem et meam similiter et forisfacturam premonstratam se nouerit incidisse.

Quicunque uero locum ipsum et elemosinam meam eidem assignatam promouerint siue manu tenuerint, cum dei benedictione et mea remunerationem eternam inueniant.

Testibus Domino Albino episcopo Fernensi et Hugone Oxeriensi, Johanne Mariscallo, Johanne de Erleg, Willelmo de Lundon, Radulpho de Bendeuill, Mylone filio episcopi, Philippo Prendelgast, Thoma filio Antonii, Waltero Porcell, Willelmo de Sancto Leodegario, Thoma de Dummer, Mauritio de Lundon, Andrea Auenel, Willelmo de Cantinton, Johanne de Penriz, Eustachio de Bertrimmunt, Terrico de Niuer', Thoma Russel et multis aliis.

This charter was executed in Ireland, as the names of the witnesses indicate, and it may be dated shortly after William Marshal's arrival to take up his fief in 1207. Its terms were closely followed by Walter Marshal, the founder's son, in his charter to Dunbrody Abbey[1] about 1241.

The Saxon legal terms employed are common in deeds of this nature. 'Socha' is from the Saxon 'soch,' which means 'liberty,' sc. to minister justice. 'Sacha' is from 'sac,' a 'cause,' and denotes the privilege which the lord of a manor had of holding pleas in causes of debate among his vassals. 'Toll' implies liberty to take 'custom' and to be exempt therefrom. 'Theam' is from 'tyman,' to bring forth, and has to do with the powers of the lord of the manor over his vassals and their children. 'Infangenetheof' denotes the liberty to try a thief for offences committed within the estate.

[1] C.M.A. ii, 162.

All the early donations of land to the convent were, like this the first, given 'pro salute animae' of the donor and his relatives. They were made 'in puram et perpetuam elemosynam,' and there was no question of any return by way of rent or the like, for the first half century of the life of the abbey. Thereafter leases begin to appear among the abbey muniments, no. 61 being the first granted by an individual of which we have a record.

William Marshal's seal is still attached to the charter, which is mentioned (as is natural) in the Extracts from the Duiske registers (E, F, L).

Cistercian abbeys were always dedicated to God and the Blessed Virgin Mary; and they were generally given some special title in addition. Thus Baltinglass was 'de Valle Salutis,' Killenny was 'de Valle Dei,' and Duiske, with which we are particularly concerned, was 'de Valle sancti Saluatoris.'

It has been already explained (p. 12) that it was through his wife Isabella, Strongbow's daughter, that William Marshal obtained his vast possessions.

A carucate contained about 120 Irish acres; and of the eleven carucates granted at *Annamult*, charters 1 and 2 have told of quit claims by former tenants.

The land held by *Stephen de Valle* was at Tulachany (see further, p. 21), or Grange, in the barony of Shillelogher, co. Kilkenny, a district already mentioned (p. 13) as one of the temporary resting-places of the monks from Stanley, before the abbey of Duiske was built. In 1247 we find John de Valle holding Marshal lands at Tulachany,[1] and the family—variously known as de Valle, Wale, Wall, Veal, or Calf—remained there for centuries. Stephen de Valle appears elsewhere as a witness, along with Alan Beg, to a Charter of William de Burg, who died in 1206.[2]

The district known as the *Island* was part of the parish of Kilmokea in the barony of Shelburne, co. Wexford; it is no longer separated from the mainland, as the channel has long since been filled up.

Most of the witnesses to this important charter were considerable people:

Albin O'Molloy, bishop of Ferns, was the last Celtic bishop of that see. He had been formerly abbot of the Cistercian monastery of Baltinglass, and had in 1204 (see Charter 6) already consecrated a cemetery for his brother Cistercians at Duiske. He ruled the see of Ferns from 1186 to 1223.

For *Hugh le Rous*, bishop of Ossory, and *John Marshal*, see p. 15, above.

John d'Erlee, so called from Early in Berkshire, was one of William Marshal's most trusted followers. He came to Ireland with his lord in February, 1207, and was entrusted with the custody of southern Leinster when the earl was summoned back to England by King John. He witnessed the Charters granted to Kilkenny, and to Dunbrody and Tintern abbeys. He obtained the estate, now known as Earlston, in the barony of Shillelogher, co. Kilkenny, from an earlier Anglo-Norman grantee. He was probably alive in 1228 (see Charter 25).

William de London was possibly a kinsman of Henry de Londres, who was archbishop of Dublin from 1213 to 1228; he appears as a witness to a charter granted by that prelate. He also witnessed King John's charter to Dublin in 1200,[4] and William Marshal's charter to Tintern,[5] as well as two deeds preserved in the archives of Christ Church, Dublin.[6]

[1] C.M.A. ii, 405. [2] R.T.A. 105. [3] R.T.A. 286; cf. 57, 68.
[4] *Chartae*, &c., p. 12. [5] *Ibid.*, p. 80. [6] Nos. 28, 29.

Ralph de Bendeville appears as Archdeacon of Leighlin in 1210, but he had not reached that dignity when he witnessed this instrument (cf. Charter 7). He appears earlier as witnessing a charter granted by Strongbow (before 1176).[1]

For *Milo Fitz Bishop* see p. 8, and for *Thomas Fitz Anthony* p. 15.

Philip de Prendergast was son of Maurice de Prendergast, from the Flemish colony in Pembrokeshire, who had been granted land near Wexford by Strongbow. Philip, who was one of William Marshal's men (although not uniformly loyal to his lord), married Matilda de Quency (see Charter 18) in 1198, and thus became lord of the manor of Enniscorthy. He appears frequently as a witness to charters of this period.[2] He died in 1229.

Walter Purcell was another of William Marshal's men. He held land adjoining that of the St. Legers in co. Kilkenny,[3] and was the founder of a well-known Kilkenny family. He appears as seneschal of Leinster in 1219,[4] and as witness to many charters varying in date from 1200[5] to 1202.

William de St. Leger was granted the parish of Tullaghanbrogue, co. Kilkenny, at the invasion; and the family kept the property until the Cromwellian confiscations, when it was given to the Cuffes. Geoffrey St. Leger, bishop of Ossory from 1260 to 1287, was presumably of the same stock. William was a benefactor to St. Thomas' Abbey,[6] and either he or his son (who had the same name) made a grant to the convent of Duiske (see Charter 48).

Thomas de Dumner may have been of the kin of Philip Dumer, who held Marshal lands at Dysert, co. Kilkenny, in 1247.[7]

Maurice de London witnessed King John's Charter to Dublin in 1200,[8] and William Marshal the elder's charters to Tintern[9] and to Dunbrody,[10] about 1208; as well as Walter Marshal's charter to the latter abbey in 1244.[11] In Richard Marshal's deforestation charter of 1233 he is named as holding land in the vicinity of Ross.[12] He appears again (if this be the same man) in Charter 59.

William de Caunteton. The Cauntetons (or Condons, as they have been called in later times) acquired the lordship of Glasscarrig, near Gorey, co. Wexford, towards the end of the twelfth century. This William de Caunteton may be identified with the man of that name who witnessed grants to St. Thomas' Abbey before 1189,[13] and about 1200.[14] He is mentioned in Charter 14 as the husband of Cecilia, the daughter of Alan Beg (see p. 11, and further, p. 35).

John de Penriz appears in the year 1205,[15] as receiving a writ of *Mort d'Ancestor* against Theobald Walter, touching land in Arklow.

For *Eustace de Bartolomonte* see p. 17.

4.

Amending Grant by William Marshal to the abbey of Duiske of land at Tulachany with Clundaf, Kilmeggeth, and Liscrithan.

This charter is identical with no. 3, except that the words in no. 3 "terram

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[1] C.M.A. i, 258. [2] R.T.A. 155, 157, 214, 221, 226, 338; C.M.A. i, 30, 107, 109.
[3] R.T.A. 137, 356. [4] C.D.I. i, 873. [5] *Chartae*, p. 12. [6] R.T.A. 48, 137.
[7] C.M.A. ii, 405. [8] *Chartae*, p. 12. [9] *Chartae*, p. 80. [10] C.M.A. ii, 159.
[11] C.M.A. ii, 164. [12] C.M.A. ii, 157. [13] R.T.A. 205.
[14] R.T.A. 112; cf. also 88. [15] C.D.I. i, 280.

quam Stephanus de Valle tenuit," are replaced by the more specific description "et Tullachani cum pertinentiis suis, scilicet Clundaf et Kilmeggeth et Liscrithan." The seal is intact, as in no. 3, and the witnesses are the same. The charter was apparently re-written to obviate any future dispute as to the extent of the lands granted at *Tulachany*, which with its appurtenances constitutes the modern parish of Grange, co. Kilkenny. *Kilmeggeth* is now called Kilmogg, or the Race Course. See no. 107 for a complete description of the lands comprised in the Grange of Tulachany.

A facsimile of this charter will be found in Gilbert's *National Manuscripts of Ireland*, pt. II, no. lxix.

5.

Confirmation by Hugh le Rous, bishop of Ossory, of William Marshal's grants of land to the abbey of Duiske, with the tithes of the chapels of Duiske and Annamult.

H. dei gratia Ossoriensis episcopus omnibus Christi fidelibus ad quos presens carta peruenerit salutem et benedictionem.

Licet omnibus quibus deus preesse nos uoluit teneamur prodesse, maxime tamen illud nos conuenit paterne dilectionis curam sollicitius impendere quos prepollere nouimus artioris vite et religionis decore. Inde est quod dilectos filios nostros abbatem et monachos Sancti Salvatoris de Dowisky cum suis omnibus fratribus famulis bonis et beneficiis sub dei et nostra protectione suscepimus; et terras eorum et omnia tenementa tam laica quam ecclesiastica tam mobilia quam immobilia pie illuc a viro venerabili Willelmo Marescallo comite de Pembroc iam concessa vel in posterum concedenda, et nominatim capellas de Dowisky et de Atermolt, cum decimis, et aliis pertinentiis ad easdem capellas spectantibus, divine karitatis intuitu fratribus eisdem concessimus, et in perpetuum auctoritate pontificali confirmauimus.

Testibus capitulo de Stanleg, unde eos comes prenominatus ad fundandum sibi cenobium in Hyberniam accersuit, Roberto de Kocre, Odone Archidiacono, Ricardo Fanin, Reginaldo canonico de Bomine, Felice clerico, Radulpho Russel, Odone filio Benedicti, et Adam, seruientibus nostris, et multis aliis.

Of this charter, portions of the seal remain. It is probably not much later than nos. 3 and 4, and seems to have been executed in Ireland, whither the chapter of Stanley (or some of its members) had been brought by the earl for the founding of the monastery. The names of *Odo l'Ercedekne* and *Richard Fannin*, who witnessed William Marshal's charter to Kilkenny about the same time, and also our Charter no. 1 (see p. 14), confirm this view of the place where the charter was granted.

Reginald, canon of Bodmin, who also appears, was *Reginald de Aclond*, one of four Austin canons whom Geoffrey Fitz Robert (see p. 14) brought over from Bodmin in Cornwall, for the priory which he founded at Kells. Reginald was the first prior, being succeeded by Hugh le Rous; but when the latter was made Bishop of Ossory, he again became prior (see no. 9), and appears as late as 1229 in that capacity.

6.

Letters testimonial of Hugh le Rous, bishop of Ossory, to the abbot of Citeaux and the general chapter of the Cistercians; setting forth that during his absence in England and by his permission, Albin, bishop of Ferns, on 6 June, 1204, had dedicated a cemetery at Duiske on the land which William Marshal had given for a monastery to monks from Stanley; and incorporating the Bishop of Ferns' certificate of the dedication, as well as the formal agreement of Gregory, abbot of Jerpoint, and Iman, abbot of Killenny, thereto.

Viro uenerabili et uirtutum meritis insigni domino abbati Cisterciensi sancteque congregationi capituli eiusdem generalis, H. diuine dono gratie Ossoriensis episcopus cursu securitatis brauium consequi felicitatis eterne.

Cum in perhibendo ueritati testimonio omni humane creature simus debitores in eorum negociis promouendis, adhuc promptiores tenemur inuenire, quorum fundatio patrie ad securitatem, quorum sustentatio tam diuitibus quam pauperibus ad solamen, quorum prorsus conuersatio dei creuit ad gloriam et honorem.

Hinc est quod petentibus in nobis dilectis filiis nostris sacri ordinis uestri uiris religiosis, abbate scilicet et conuentu de Valle Sancti Saluatoris, sancte congregationi capituli uestri generalis duximus testificandum quod cum uir illustris W. Marescallus Comes Pembroke monasterium fundasset memoratum in Valle que nunc dicitur Sancti Saluatoris, et ex re quidem† nomen accepit cum prius esset locus horroris et uaste solitudinis, spelunca latronum et cubile sanguinis insidiantium, pro negociis nostris in Anglia constituti, archidiacono et officialibus nostris litteris patentibus dedimus in mandatis ut si fratres monasterii predicti ante reditum nostrum in Hyberniam in fundationis sue loco cimiterium sibi desiderarent dedicari per uenerabilem fratrem nostrum Fernensem episcopum, uel alium quemlibet antistitem transitum per uos facientem, hoc benigne auctoritate nostra permitterent adimpleri.

Fratribus igitur memoratis hoc petentibus cum cimiterio ipsorum dedicando dominus Fernensis memoratus accessisset et inter eiusdem loci monachos ex parte una et de Joriponte ac de Valle Dei abbates tunc ibidem presentes ex parte altera, de uicinitate loci questio oriretur, tandem idem abbates sicut patuit ex post facto in consensum transeuntes, eidem dedicationi faciende ipsi episcopo sine contradictione astiterunt et cooperati sunt, prout idem episcopus litteris suis patentibus protestatur, quas et oculis uidimus et manibus nostris contrectauimus sub tenore ac forma quam presenti pagine censuimus inferendam:

"Domino Cisterciensi et omnibus reuerendis patribus qui omni recursu temporis ad Cisterciensium conueniunt capitulum, Albinus Dei gratia Fernensis de ordine Cisterciensi creatus episcopus, ad suam filiorumque salutem recta discernere in eo qui saluat rectos corde:

Nouerit uniuersitatis uestre prouidentia quod anno ab Incarnatione domini MCCIIII. VIII Idus Junii in Osseria, ex permissione et auctoritate domini Hugonis Ossoriensis episcopi, qui tunc temporis causa existente in Angliam transfretauerat, iuxta ripam fluminis Barwo, circumfluente populo, et assistentibus nobis et cooperantibus uenerabilibus fratribus nostris Gregorio et Yman Sancte Marie de Jeriponte et Valle Dei abbatibus, dedicationem cimiterii sollempniter celebrauimus in terra, uidelicet cui nomen est Adlatharan, et fuit quondam Bren Odowiskir, quam nimirum Willelmus Marescallus Comes de Pembrok ordini Cisterciensi ad construendam abbatiam donauit Anglicis et Sancte Marie monachis de Stanleia in opus illud euocatis. Quamobrem eorum qui ibidem Deo seruituri sunt perpetue paci et tranquillitati prospicientes, in omnes †quecumque tenementa et alia bona ad suam et hospitum sustentationem et fundatione suo donata, siue que deinceps pia fidelium donatione consequi poterunt, diripiendo uel minuendo in eos indignari presumpserint anathematis sententiam protulimus; omnes autem qui sedula protectione quecumque eorum possessiones defensare et ut benigna etiam largitate augere uoluerint Dei omnipotentis benedictioni commendauimus."

Hec igitur in nostra [illegible] celebrater† peracta declarando posteris scripto mandauimus et sigillo nostro muniuimus, quatinus boni predictos Dei seruos et eorum successores propter mercedem diligere et beneficiis . . . . . ad . . . . . autem, et mali timore pene ab odio eorum et omni grauamine compescantur. Litteras etiam abbatis de Jeriponte super uicinitatis concessas patentes qui abbatie de Valle Dei pater abbas est, in hec uerba uiderunt oculi nostri et manus nostre tractauerunt:

Domino [illegible] capitulo Cistercii frater G. dictus abbas de Jeriponte totus [illegible] eidem Dei conuentus salutem et deuotam obedientiam.

Noueritis nos concessisse monachis de Sancto Saluatore ut in terra Ua Duniskir [illegible] construant abbatiam et grangias ad libitum suum construant. Et ut omnis discepatio [illegible] uicinitate tollatur eandem concessionem nostram auctoritate nostre presentis carte generali capitulo [illegible] et sigilli nostri testimonio communimus. Hanc tamen damus eis [illegible] sibi [illegible] sententia. Quoniam igitur abbatia pretaxata regulariter et secundum deum conuincitur stabilita sanctitati uestre . . . . . [illegible] et supplicamus precamur inde gratias gratie uestre commendata permaneat et ipsos precamur in elemosinis [illegible] quod uirorum inibi Deo seruientium [illegible] odorem [illegible] quanto eo suauius noscitur redolere. Valeat sancta congregacio uestra semper in Christo."

A small piece of the seal of Bishop Hugh le Rous is still attached to this document, which presents several features of interest.

It appears from it, in the first place, that the new abbey of Duiske was counted as being situate in the [illegible] of Ossory. Now the parish of Graiguenamanagh has always been regarded, since the beginning of the fourteenth century at any rate,[1]

[1] [illegible] Taxation of parishes in Ossory in 1306 and 1318, which are given in the *Red Book of Ossory*. See Charter 28, *infra*.

as belonging to the diocese of *Leighlin*. But throughout its history, the abbey of Duiske, as distinct from the parish which grew up around it, was counted as in Ossory diocese. This appears explicitly in the year 1245 ;[1] in 1254 ;[2] in 1306, when the abbey is described in Charter 97 as of the diocese of Ossory, and when (as also in 1318) it was taxed with that diocese ;[3] in 1362,[4] 1440,[5] 1460,[6] 1475,[7] and 1490,[8] the abbey being indicated in each of these years as "Ossoriensis diocesis." So it is described also in 1513, in the title of the Extracts from the Register which we call E.[9] Indeed as early as 1228, the Bishop of Leighlin formally renounced[10] all claims against the abbey of Duiske, arising out of its absorption of Killenny, which was in his diocese. It was probably on account of the difficulties arising from the circumstance that the abbey and the parish of Graigue were not in the same diocese, that an instrument of date 1401 setting forth the boundaries of Leighlin was entered in the Duiske Registers.[11]

The description of the site of Duiske Abbey as "a place of horror and of a vast solitude, a cave of robbers, and the lair of those who lie in wait for blood" reads strangely to those who know it now as a beautiful and smiling valley. But it has always to be remembered, to the credit of the monks, here and elsewhere, that they did a great work in reclaiming and cultivating wild tracts of country. Many of the grants of land set out in subsequent charters were grants of bare moor and bog and mountain ; it was by the labours of the community at Duiske that they became valuable.

The opening words of the certificate of Albin, bishop of Ferns,[12] allude to the rule requiring all Cistercian abbots to attend annual chapters at Citeaux. This was modified for the Irish houses, the presence of three only of the Irish abbots being required, and the abbot of Mellifont being made responsible for their compliance with the regulation.[13]

That it was necessary to obtain the consent of the neighbouring abbeys of Jerpoint and Killenny, before a new establishment could be set up, was natural ; and the disputes between Duiske and these convents which continued for centuries show how far from a mere formality this consent was. There was really not room for three Cistercian houses in the same county, and this became plain very soon.

The language of the consent by the abbots of Jerpoint and Killenny shows that in 1204 the abbey of Duiske had not yet been built. "Ut in terra Ua Duuiskir suam construant abbatiam" were the terms of their concession to their new neighbours and rivals.[14]

The date of Bishop Hugh's Letters Testimonial cannot be determined with precision, but it was probably later than that of William Marshal's Foundation Charter, which we ascribed, tentatively, to 1207.

[1] Charter 53. [2] See p. 86. [3] See p. 131. [4] Charter 99.
[5] Charter 101. [6] Charter 103. [7] Charter 104. [8] Charter 105.
[9] See p. 154. [10] Charter 28.
[11] It is almost illegible, but its tenor is unmistakable. It is found both in E and in F.
[12] See p. 23. [13] *Statuta Ord. Cist.* 1195, no. 56 (Martene, *Thesaurus* iv, 1286).
[14] The local tradition is that the masons went to Graiguenamanagh, as soon as they had completed the building at Jerpoint Abbey (Carrigan, iv, 294).

7.

Grant, with the consent of Hugh, bishop of Ossory, by R. de Bendeville, archdeacon of Leighlin, of the tithes of Annamult to the convent of Duiske, for a rent of one silver mark annually.

Hec est conuentio facta et determinata consilio et assensu H. Ossiriensii episcopi inter abbatem et monachos Cisterciensis ordinis de domo Sancte Saluatoris quam dominus W. Marescallus fundauit in Osseria et R. de Bendeuille Leglinensem archidiaconum super decimis de Admolt: Scilicet quod dicti monachi tenebunt et libere et quiete possidebunt dictas decimas reddendo inde annuatim dicto R. archidiacono unam marcam argenti ad festum Sancti Michaelis uel infra quindecim dies.

Et ut hec conuentio rata et in posterum inconcussa permaneat predicti monachi parti cirographi, quam predictus R. habet, sigillum abbatis sui apposuerunt, et memoratus R. parti quam monachi habent sigillum suum apposuit, et sigillum domini H. Ossoriensis episcopi cum sigillo abbatis de Stanleche utrique parti apponi fecerunt.

The three seals attached to this instrument have disappeared.

For *Ralph de Bendeville*, archdeacon of Leighlin, see p. 21. It is not apparent why he should have had any claim on the tithes of Annamult, which is in the middle of the diocese of Ossory. The grant was probably made about 1209.

8.

Grant by Odo, dean of Kilkenny and his chapter, at the presentation of Hugh, bishop of Ossory, to the convent of Duiske, of the vill of Tikerlevan, with the church, &c., for an annual rent to St. Canice's Cathedral of twenty shillings, to be paid half-yearly on St. Canice's Day (October 11) and Holy Cross Day (May 3).

Omnibus Sancte Matris Ecclesie filiis ad quos presens scriptum peruenerit O. Decanus de Kilkenni et ejusdem loci capitulum eternam in domino salutem. Sciatis nos concessisse et confirmasse ad presentationem venerabilis patris nostri domini Hugonis Ossoriensi Episcopi deo et ecclesie Sancte Marie de Abbatia Sancti Saluatoris et dilectis in Christo fratribus ibidem deo seruientibus totam uillam de Stachmakerlewan cum ecclesia illius uille et cum omnibus ad eam pertinentibus, habendam et tenendam in perpetuum integre plenarie et honorifice cum aisiis et omnibus libertatibus; reddendo inde annuatim nobis et ecclesie Ossoriensi viginti solidos ad duos terminos pro omni seruicio et exactione uidelicet ad festum Sancti Kannici decem solidos et ad inuentionem Sancte Crucis decem.

Nos autem remisimus et quietum clamauimus predictis fratribus clameum, quod habuimus adversus ipsos de terra in uilla de Tulahhani.

Et ut hec nostre confirmationis pagina in posterum illibata permaneat eam presentis scripti testimonio et sigilli nostri appositione corroborauimus.

Hiis testibus Domino H. Lehhelinensi episcopo, Willelmo Marescallo comite Pembrok, O. Decano de Kilkenni, G. archidiacono Ossoriensi, O. Priore Sancti Johannis de Kilkenni, Roberto de Baligaueran et Normanno, capellanis, Magistro Edmundo, Ricardo de Ponte clerico, Thoma clerico, et multis aliis.

Ti-kerlevan, or Stackmakerlevan,[1] is near Coppenagh in the parish of Graiguenamanagh. This presentation is confirmed in later charters (nos. 23, 26, and 44).

As *Hugh le Rous*, bishop of Ossory (see p. 15), died in 1218, this instrument (of which the seal has disappeared) must have been executed before that year, but we can determine the date more exactly.

The earliest deans and archdeacons of Ossory are not accurately given in Cotton's *Fasti*, but the additional information now provided in the published Register of St. Thomas' Abbey enables us to get a little nearer to the facts, although precise dates cannot be fixed. Confusion has been caused[2] by forgetfulness of the circumstance that *Archidiaconus* often stands for the family name *l'Ercedekne* (see p. 15, above), and is not always the title of an ecclesiastic. Putting together the charters at pp. 135, 310, 314 of the Register of St. Thomas' Abbey, we reach the result that *Odo* or Hugh became Dean about 1216, and was succeeded by William in 1228. Of the Archdeacons, we have Reginald in 1205 and 1215, succeeded in the latter year by *Gilbert*, to whom followed Odo about 1223, and Almaric (see no. 31) in 1228.

Hence *Odo, dean of Kilkenny*,[3] gives us 1216 as the earliest date for this instrument.

H., bishop of Leighlin, the first witness, was Herlewin de Marisco, a Cistercian monk, who died in 1217, and was buried in Dunbrody Abbey.[4] This fixes the charter to the years 1216–1217.

William Marshal, earl of Pembroke (see p. 12), died in 1219. His residence from 1213 was mainly in England, but this deed must have been witnessed during a brief visit to his lands in Ireland.[5] See the next charter (9).

Osbert, the prior of St. John's, Kilkenny, a house of Austin Canons, founded by William Marshal senior, appears at various dates between 1202 and 1227.[6]

Robert of Gowran appears several times as attesting charters of St. Thomas' Abbey.[7] He is described variously as 'clericus' and as 'officialis Ossorie.'

Of the remaining witnesses, we know nothing. *Richard de Ponte* was probably 'Richard of Ross,' Ross being often called Ros-ponte at this period.

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[1] The prefix *ta, ti*, is often corrupted into *sta, sti* in the eastern counties of Ireland: e.g. *Stillorgan* = Tigh-Lorcain.

[2] See, e.g., Gilbert's note in R.T.A., 135.

[3] This is the older and more correct title. But for centuries the Dean of the Cathedral Church of St. Canice's has been called the "Dean of Ossory."

[4] C.M.A. ii, 280. [5] See Orpen, ii, 218.

[6] See Charters 9, 10, 13, 14, 23, 24, and R.T.A. 132, 303, 322, 323.

[7] R.T.A. 132, 133, 136, 233, 313, and C.D.I. i, 1870 (under the year 1231).

9.

Convention made between Odo, dean of Kilkenny, with his Chapter and S. the abbot and convent of Duiske. The dean to hold the church of Tulachany with 15 acres of land in that vill with tithes of the crops of the monks, and one acre of meadow for the tithes, greater and lesser, of the hay of their farmers: at the dean's death, the said church and all tithes to revert to the convent. For this, the monks are to pay to St. Canice's one mark of silver annually, for all customs and exactions which belong to the Bishop of Ossory and his officials, saving the synodical dues.

Hec est conuentio facta inter Odonem decanum et capitulum de Kilkenni ex parte una et S. abbatem et conuentum de Sancto Saluatore ex parte altera, in presentia domini H. Ossoriensis episcopi et illustris viri W. Marescalli Comitis Penbrok; quod videlicet predictus O. decanus tenebit ecclesiam de Tolachhani et possidebit quod uixerit cum quindecim acris terre in eadem uilla ei assignatis, et decimis de frugibus monachorum in ipsa uilla provenientibus, et unacreta prati pro decimis feni, decimis quoque tam maioribus quam minoribus tam ipsorum quam hominum suorum in eadem uilla manentium.

Post cuius vero predicti O. decani in fata decesserit, abbas monasterii memorati et conuentus possidebunt ecclesiam memoratam de Tolachhani jure perpetuo et habebunt in usus proprios cum decimis et obuentionibus uniuersis ad eam pertinentibus, reddendo inde annuatim ecclesie cathedrali de Kilkenni unam marcam argenti ad duos terminos ad festum scilicet Inuentionis Sancte Crucis dimidiam marcam, et ad festum Sancti Kennicii dimidiam marcam, omni consuetudine et exactione que uel ad episcopum Ossoriensem uel archidiaconales pertineat, saluis tamen sinodalibus.

Ut igitur hec conuentio inuiolabiliter in perpetuum perseueret tam episcopus Ossoriensis quam capitulum et abbas memoratus atque conuentus sigilla sua presenti cirographo in robur et munimen appenderunt.

His testibus, Domino H. Ossoriensi episcopo, Domino W. Marescallo Comite Penbrok, Reginaldo priore de Kenles, Osberto priore de Sancto Johanne, Roberto de Baligeuran, Nicholao capellano Comitis, Waltero capellano Comitisse, Willelmo Crasso, Odone Archidiacono, Waltero Purcel, Gaufrido Cultura, Thoma de Drubelie, Philippo clerico, Thoma clerico, et multis aliis.

The fragments of two seals still adhere to this charter, which must be about the same date as no. 8, viz. 1216. It was granted in the presence of Hugh le Rous, bishop of Ossory (p. 15), and of William Marshal the elder (p. 12); and most of the witnesses have come before us in earlier charters. Thus *Osbert, prior of St. John*, and *Reginald, prior of Kells*, have appeared in no. 8; *Reginald, prior of Kells*, in no. 5 (p. 22); *William Crasso* in no. 2 (p. 16); *Odo Archidekyne* in no. 1 (p. 14); *Walter Purcel* in no. 3 (p. 21); *Geoffrey de Cultura* and *Philip the clerk* in no. 2 (p. 17).

Thomas de Druhelle signed the Kilkenny charter of William Marshal the elder between 1207 and 1211 ;[1] and charters of his, concerning lands at Hacketstown, co. Carlow, are in the Register of St. Thomas' Abbey ;[2] he attested other deeds in the same register at various dates between the years 1202 and 1218.[3] For another member of the de Druhelle family see Charter 11.

10.

Confirmation by Hugh, bishop of Ossory, of the grant of the church of Tulachany, &c., set out in Charter no. 9.

Uniuersis Sancte Matris Ecclesie filiis ad quos presens scriptum peruenerit H dei gratia Ossoriensis ecclesie minister eternam in domino salutem.

Ad uniuersitatis uestre uolumus noticiam peruenire nos ex cons . . . . et consensu capituli nostri concessisse et presenti carta confirmasse abbati et monachis de Sancto Saluatore ecclesiam de Tolachhany cum decimis et obuentionibus uniuersis ad eam pertinentibus habendum post obitum Odonis decani de Kilkenni in usus proprios et possidendum in perpetuum libere et quiete ; reddendo inde annuatim ecclesie cathedrali de Kilkenni post decessum predicti O. decani unam marcam argenti ad duos terminos scilicet ad festum Inuentionis Sancte Crucis dimidiam marcam et ad festum Sancti Kennicii dimidiam pro omni consuetudine et exactione que uel ad episcopum Ossoriensem uel ad ejus officiales pertineat, saluis tamen sinodalibus.

Predictus vero O. decanus tenebit et possidebit ecclesiam de Tolochhany memoratam quoad uixerit cum quindecim acris terre in eadem uilla ei assignatis, et decimis de frugibus monachorum in ipsa uilla prouenientibus, et una acra prati pro decimis feni, decimis quoque tam maioribus quam minoribus firmariorum et hominum suorum in eadem uilla manentium.

Ut igitur hec concessio vestra et confirmatio inuiolabiliter in perpetuum perseueret eam scripti presentis attestatione et sigilli nostri appositione duximus roborandam.

Hiis testibus, Domino W. Marescallo comite Pembrok, Reginaldo priore de Kenlis, Osberto priore de Sancto Johanne, Roberto de Baligauran, Nichola capellano comitis, Waltero capellano comitisse, Willelmo Crasso, Odone Archidiacono, Waltero Purcel, Guidone de Cultura, Thoma de Druhelle, Philippo clerico, Thoma clerico, et multis aliis.

This deed is witnessed by the same persons as no. 9, and it was probably executed on the same day and at the same place. There is a memorandum of it in F.

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[1] *Chartae*, &c., p. 34. [2] R.T.A. 128, 312. [3] R.T.A. 125, 126, 135, 310, 355.

11.

Grant, for the good of his soul, &c., by Richard of Flanders, free of all payment and service, of two acres in Tulachany, adjoining the abbey lands, and bounded on the west by the land of William de Valle.

Uniuersis Sancte Matris Ecclesie filiis ad quos presens scriptum peruenerit Ricardus Flandrensis eternam in domino salutem.

Noueritis me ad honorem Dei et Beate Marie et omnium sanctorum pro salute anime mee et uxoris mee et liberorum meorum et successorum meorum dedisse et hac presenti carta mea confirmasse abbatie de Valle Sancti Saluatoris in puram et perpetuam elemosinam duas acras terre que iacent in angulo quodam iuxta terram dicte abbatie in Tulaghkenny, et non sunt diuise per aliquid fassatum ab illa terra; habent quoque a parte sui occidentali terram Willelmi de Valle.

Volo igitur ut predicta abbatia habeat et teneat in perpetuum predictas duas acras liberas et quietas ab omni seruicio et exactione seculari que uel ad me uel ad heredes meos possit pertinere. Et ego et heredes mei warantizabimus predictas duas acras abbatie prefate contra omnes homines et contra omnes feminas.

Ut igitur hec mea donatio et elemosina firma et stabilis perpetuo perseueret presenti scripto sigillum meum apposui.

Hiis testibus, Henrico, capellano de Karleski, Reginaldo capellano de Kiltrani, Radulpho capellano de Villa, Giliberto de Valle, Willelmo de Druhelle, Thoma persona de Kallan, Willelmo Maillardo, et multis aliis.

Hoc autem in fine nosse uos uolo quod predicte due acre sunt de meo libero conquesto.

The seal of *Richard of Flanders* is gone. His grant is confirmed in Charter no. 15 about 1225, where also we meet his son Matthew. John of Flanders, "miles," i.e. Knight, witnessed John Fitz Geoffrey's charter to Kells, which must be dated after 1234, as it seems to have been executed after William Fitz Geoffrey's death in that year.[1]

William de Valle and *Gilbert de Valle* were members of the family who held Marshal lands at Tulachany (see p. 20, above). Both names appear in one of the Christ Church deeds at Dublin no. 25 about the year 1218, and the same persons are probably indicated here. *Gilbert de Valle* was a brother of Stephen de Valle, and apparently a nephew of the Alan de Valle with whom we have met in Charter 3. They were contemporaries of Alan Beg.[2]

Of *Henry, the chaplain of Cahirleske*, we know nothing. Cahirleske is near Ballaghtobin, south of Kells in co. Kilkenny.

Reginald, chaplain of Kiltrani, may be the same person as "Reginald the chaplain" who witnessed John Fitz Geoffrey's charter to Kells after 1234. *Kiltrani*

[1] The Charter is printed (and wrongly dated, as Mr. Orpen has pointed out) in *Chartae*, &c., p. 17. [2] See above, p. 11, and R.T.A. 107.

is the name given in the Red Book of Ossory to the parish of Burnchurch, not far from Kells, co. Kilkenny.

Randolph, chaplain of Villa, is unknown. Perhaps *Villa* may stand for the vill of Kells.

The remaining three witnesses are often associated. In 1215 William Fitz Geoffrey gave a charter to Kells,[1] which was witnessed by *William Maillard* (who was William Marshal senior's standard-bearer, and was given lands at Mallardstown, between Callan and Kells) and by *Thomas the parson of Callan.*

About 1220 William de Druhelle senior granted some tithes of Jenkinstown[2] to St. John's, Kilkenny, among the witnesses being *William de Druhelle junior* and *Thomas the parson of Callan.* In 1223 William Marshal junior gave a charter to St. John's, Kilkenny,[3] which was witnessed by *William Maillard* and *William de Druhelle.* In 1227 *William de Druhelle,* knight, and *Thomas rector of Callan* appear together again (no. 23, below). And we find *Thomas rector of Callan*[4] in deeds dated about 1232 (nos. 43, 44).

Putting together these data, we may fix the date of the instrument before us as about 1221. The *William de Druhelle* indicated was seemingly the younger of the two persons of that name.

The note at the end of the charter, from which it appears that the lands granted are free of all service, having been gained 'by free conquest,' is interesting.

Mention must here be made of a charter not now extant, of which a *précis* is given in the extracts from the Duiske Registers (E) as follows:

> "Carta Willelmi Marescalli comitis Pemb: Teste domino Th. pincerna Hiberniae, Mauricio filio Ger., Willelmo Crasso primoque tunc senescallo Lagenie."

The persons here named can be readily identified from the date of the last mentioned, *William Crassus* or le Gras, whom we have met with before (p. 16). He was seneschal of Leinster after the year 1219, the year when William Marshal the elder (p. 12) died.

This William Marshal had five sons, all of whom died childless, and his great Irish possessions were, in consequence, divided among his five daughters about the year 1246. It will be convenient to note here the main points of the pedigree, for future reference:

William Marshal the elder (d. 1219) and his wife Isabella de Clare (d. 1220) had issue:

1. *William Marshal the younger* (d. 1231), who married Eleanor, sister of Henry III.

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[1] *Chartae,* &c., p. 16. [2] Carrigan, iii, 249.

[3] Dugdale, vi, 1143; see Orpen, *l.c.* ii, 229.

[4] He appears also in deeds of the same period quoted in Butler, *Registrum prioratus omnium sanctorum juxta Dublin,* pp. 16, 23.

2. Richard Marshal (d. 1234).

3. Gilbert Marshal (d. 1241).

4. Walter Marshal (d. 1245).

5. Anselm Marshal (d. 1245).

6. Matilda Marshal (d. 1248), who married Hugh Bigod, earl of Norfolk (d. 1225), and subsequently William de Warrene, earl of Warrenne and Surrey. Her portion of the Leinster lands included the Baronies of Forth, St. Mullins, and the Island in the counties of Carlow and Wexford. She had four sons—Roger Bigod, earl of Norfolk, Marshal of England (d. 1270); and Hugh (d. 1264), whose son Roger Bigod the second succeeded to the earldom and died in 1306; Ralph Bigod; and John Warrenne.

7. Isabella Marshal, who married Gilbert de Clare, earl of Gloucester. Her estates were in co. Kilkenny, and subsequently came to James, 3rd Earl of Ormonde, in 1391.

8. Sibilla Marshal, who married William de Ferrers, Earl of Derby. Her portion was mainly in co. Kildare.

9. Eva Marshal, who married William, son of Reginald de Braose. The territory of Leix was assigned to her.

10. Joanna Marshal, who married Warin de Mount Chesney. Her portion was chiefly in co. Wexford.

The grantor of the charter here under consideration was *William Marshal* [illegible], who died in 1231, and its date was probably about 1220.

We next come to Theobald Walter. There were four of that name. The first Theobald Walter was son of Hervey Walter and brother of Hubert Walter, archbishop of Canterbury. He came to Ireland in the train of Henry II. He was rewarded for his services with large estates and was created hereditary Chief Butler of Ireland—an office which still gives its name to the [illegible]. This first Theobald Walter died in 1206, and left by his second wife Matilda de Vavasour,

1. *Theobald Walter the second* (b. 1200, d. 1230).

He also left, by a former wife,

2. Beatrice Walter, who married—*first*, Thomas de Hereford; *secondly*, Hugh Purcell (see p. 86).

3. Matilda Walter, who married Gerald de Prendergast.

It was *Theobald Walter the second* who was witness to the charter before us. He left issue Theobald Walter the third (d. 1248), who in his turn had issue Theobald Walter the fourth (d. 1285).

The other witness, [illegible] *Maurice Fitz Gerald*, second Baron Offaly, who died in 1257.

12.

Confirmation, for the good of his soul and the souls of his parents, by William Marshal the younger, earl of Pembroke, to the convent of Duiske, of the lands of Duiske, Annamult, Tulachany, Clundaf, Kilmeggeth, Liscrithan, with burgages in Kilkenny, Wexford, and the Island, granted by his father.

Willelmus Marescallus Comes Pembrokie uniuersis hominibus suis, Francis, et Anglis, Walensibus, et Hyberniensibus, et omnibus amicis et fidelibus suis salutem.

Sciatis nos pro amore Dei et pro salute anime nostre et pro salute animarum patris nostri W. Marescalli Comitis Pembrokie, et matris nostre Comitisse Ysabel, atque omnium predecessorum ac successorum nostrorum, concessisse et hac presenti carta nostra confirmasse abbatie Sancti Saluatoris de ordine Monachorum Cisterciensium in terra Dowiskir donationes omnium terrarum et possessionum cum libertatibus omnibus et liberis consuetudinibus quas predictus pater noster eidem abbatie in puram et perpetuam elemosinam dedit et incartauit; scilicet totam illam terram Dowiskir cum pertinentiis suis, et Athenemolt pro undecim carrucatis terre, et Tulachkenni cum pertinentiis suis, scilicet Clundaf et Kilmeggeth et Liscrithan iuxta Kilkenny, pro decem carrucatis terre, unum quoque burgagium in Kilkenny, et aliud in Weseford, et tertium in Insula, et preterea quicquid ei poterit in futuro pia donatione seu uenditione fidelium, saluo seruitio nostro et heredum nostrorum peruenire.

Volumus igitur et firmiter statuimus ut abbatia pronominata et abbas et monachi ipsius loci habeant et teneant omnes predictas terras et tenementa pronominata cum ecclesiis et capellis et omnibus libertatibus et liberis consuetudinibus suis cum socha et sacha et toln et theam et infangenetheof bene et in pace libere et quiete plenarie et integre et honorifice ; In bosco et in plano, in pratis et pasturis, in aquis et molendinis, in stagnis et uiuariis, in mariscis et piscariis et gliscriis, in grangiis et uirgultis, in uiis et semitis, infra burgum et extra et in omnibus aliis locis et rebus; et sint quieti ipsi et homines et seruientes sui et res et possessiones eorum de geld et denegeld et murdro et latrocinio et de pecunia que ad murdrum pertinet uel ad latrocinium et de uaccarum solutione quam dare solebant pro capitibus utlogorum, et de scuagio et hidagio et carruagio, et cornagio et summagio et hutiban et scyris et hundredis et de sectis scyrarum et hundredum et de exercitibus et assisis et summonitionibus et de tesauro ducendo et de auxiliis uicecomitum et omnium seruientum suorum et omnibus aliis auxiliis et de operationibus castellorum et pontium et parcorum et murorum et uiuariorum et de misericordia comitatus et de teloneo et pontagio et passagio et passagio† et lestagio et stallagio et tallagio et de clausuris et de werdpeni et hauerpeni et thethingpeni et blodwite et fichtwite et hengwite et flemeneswite.

Et sit ipsa abbatia cum omnibus tenementis suis extra forestam et omnino sine regardo forestarie, et liceat eisdem monachis de boscho et in omni bosco suo de aquis et in aquis suis quicquid uoluerint facere et sint liberi ab omni uexatione et penitus extra dangerium forestariarum et omnium aliorum seruientum terre de pastu uidelicet et omnibus aliis exactionibus quas forestarii et alii seruientes terre solent exigere, et de omnibus querelis et placitis et occasionibus et consuetudinibus et de omni seruili opere et seculari exactione.

Et habeant sibi omnimodam forisfacturam propriorum hominum suorum, sola iusticia uite et membrorum nobis et heredibus nostris retenta, et per omnes forestas nostras pasturam habeant porcorum suorum quietam a pannagio, et quicquid ad ardendum et ad edificandum habuerint necessarium.

Siquis uero uel in presenti uel in futuro quicquam de his que predicte abbatie concessimus et confirmauimus calumpniatus fuerit non tenebuntur inde monachi respondere, set ad nos pertinebit et ad heredes nostros calumpniatoribus eorum uel excambio uel alio rationabili modo satisfacere monachis, que quicquid eis pater noster donauit guarantizare et integrum conseruare.

Districte ergo prohibemus super forisfacturam nostram uidelicet decem marcarum, ne quis eos uel homines suos aut seruientes suos aut res aut possessiones eorum maliciose uexet an grauet uel in aliqua re disturbet.

Volentes igitur hanc concessionis nostre et confirmationis paginam ratam in perpetuum et stabilem permanere sigillum nostrum eidem apposuimus.

His testibus, Domino Petro Ossoriensi episcopo, Johanne Marescallo, Thoma filio Antonii tunc senescallo Lagenie, Fulcone filio Warini, Henrico le Buteillier, Waltero Purcel, Willelmo Crasso utroque, Hamone Crasso, Henrico de Kernet, Reginaldo de Kernet, Magistro Deodato, et Magistro Henrico, clericis domini comitis, et multis aliis.

This charter, which was of great importance to the Abbey (see no. 56, below), has lost its seal. It is the Confirmation of his father's grants by William Marshal the younger (see p. 31); and, from the names of the witnesses, it must be of approximately the same date as his charters to Kilkenny,[1] Carlow,[2] and St. John's Priory, Kilkenny,[3] and may be set down as of the year 1223.[4]

Peter Malveisin, although elected in 1218, was not consecrated to the bishopric of Ossory until the end of 1221 or the beginning of 1222.[5] He died in 1230 or 1231.

We have had before *John Marshal* (p. 15), *Thomas Fitz Antony* (p. 15), and *Walter Purcell* (p. 21), all of whom witnessed the Foundation Charter of the elder William Marshal.

The attestation "Willelmo Crasso utroque" seems to mean that *both* the brothers called *William Crassus* (see p. 16) were present on this occasion.

[1] *Chartae*, &c., p. 34. [2] *Chartae*, &c, p. 38. [3] Carrigan, iii, 249.
[4] Another of William Marshal's charters with many of the same witnesses is found in R.T.A. 119. [5] Carrigan, i, 35.

Hamo Crassus is often associated with his brother as a witness.[1]

Fulk Fitz Warin married Matilda, the widow of Theobald Walter the first (see p. 32) in 1207, and he appears as one of the Marshal tenants in 1246.[2] A letter from him to Hubert de Burgh, justiciar, is extant.[3]

There is a charter of *Henry le Butler* in the Register of St. Thomas' Abbey.[4]

Reginald de Kernet and *Henry de Kernet* appear again in Charter 16. Reginald also signs Charter 46 as Sheriff of Kilkenny about 1233. Henry appears in an unpublished Kells charter of date about 1240; his wife's name was Claricia.

Master Deodatus, one of the earl's clerks, signed his charter to Kilkenny in 1223. His signature is not attached to the later charter to Carlow. It is possible that he is to be identified with the Deodatus who became bishop of Meath in 1224, but there is no direct evidence.

Master Henry, another of the earl's clerks, signed his Carlow charter.

In the Extracts from the Duiske registers (EL) we have a record of an acquisition of land by the convent in the year 1223, which should be noted at this point.

At the end of the twelfth century a Benedictine priory was founded at Glasscarrig, near Gorey, co. Wexford, from the Abbey of St. Dogmael's in Pembrokeshire. And in the year 1223 (as appears from the name of John [St. John] bishop-elect of Ferns, as a witness) two carucates of land in Bantry, which had been granted to Glasscarrig Priory by Adam de Caunteton (see p. 21), were transferred to the abbey of Duiske (see no. 41), by an agreement made by Andrew, abbot of St. Dogmael's, between the Prior of Glasscarrig and Thomas the abbot of Duiske. Besides John St. John, two other witnesses are named in the *précis* in E, viz., William de Caunteton senior, who was Lord of Glasscarrig (p. 21), and Richard Prendergast (see p. 42, below).

13.

Grant, for the good of his soul, &c., by Alan Beg, with the consent of William de Caunteton and his wife, Cecilia, daughter and heiress of the said Alan, to the convent of Duiske, of the church of Duntnactathec in Idrone, with consecrated ground of twelve acres, also of the chapel of Rathkenny, with its consecrated ground, and the chapel of Rathsenboth in Forth, with consecrated ground of twelve acres.

Omnibus Sancte Matris Ecclesie filiis ad quos presens scriptum pervenerit Alanus Beg eternam in domino salutem.

Sciatis quod ego, pro salute anime mee et uxoris mee Neste, et omnium

[1] William Crassus senior and Hamo Crassus attested in 1222 the charter of William Marshal the younger, confirming the foundation of Tintern in Monmouthshire (Dugdale, *Monasticon*, v, 267).

[2] C.M.A. ii, 404 [3] *Royal Letters Henry III*, vol. i, p. 305. [4] p. 138.

predecessorum parentum meorum ac liberorum et aliorum successorum meorum, assensu et voluntate Willelmi de Kantintune et uxoris sue Cecilie filie mee, heredum scilicet meorum, dedi et concessi quantum pertinet ad jus patroni et hac presenti carta mea confirmaui abbatie Beate Marie de Valle Sancti Saluatoris que est de ordine Cisterciensi ad sustentationem abbatis et monachorum ibidem Deo seruientium, ecclesiam de Duntnactathec in Odrona cum terra sanctuarii, scilicet duodecim acris et cum omnibus ad eandem ecclesiam pertinentibus, uidelicet capellam de Rathkenny cum terra sanctuarii et aliis pertinentiis suis, capellam quoque de Rathsenboth in Fodhred eisdem concessi cum terra sanctuarii scilicet duodecim acris et cum omnibus pertinentiis suis.

Volo igitur et firmiter statuo ut prememoratus abbas et conventus de Valle Sancti Saluatoris habeant et teneant prenominata beneficia ecclesiastica in puram et perpetuam elemosinam ab omni exactione quantum ad jus patroni pertinet libera omnimodis et quieta. Et ego heredes mei warantizabimus eadem beneficia abbati et monachis eisdem contra omnes homines in quantum potest patronus warantizare.

Ut igitur hec mea donatio et concessio rata in perpetuum et stabilis permaneat presens scriptum censui in testimonium tam sigilii mei quam predicti Willelmi de Kantintune munimine roborandum.

His testibus, Domino Theobaldo Pincerna Hybernie, Willelmo Crasso primogenito tunc senescallo Lagenie, Hamone Crasso fratre ipsius, Ricardo Pincerna, Nicholao le Marchis, Osberto priore Sancti Johannis de Kilkenni, Alueredo priore de Insticc, Randolpho persona de Baligauran, et multis aliis.

One of the two seals of this charter is preserved. The grant was of great value (there is a note of it in E[2]); it was confirmed in 1249 and again in 1262, as appears from notes in E[2] as follows:—

"Charta W. Leighl' episc' cuius in superiori facta mentio) an. 1249 pontificatus nostri 21. Confirmatio charte Alani Beg patroni ecclesie Dunmactaydg per Lucam Dublin: archiep:"

William (1228–1251) is the bishop of Leighlin indicated, and Luke (1228–1255) was the archbishop of Dublin. See p. 72.

And again:

"Charta confirmationis (super eodem) T. Leghlin: episc: ad confirmationem dom' et instrumenti tunc memoriae W. predecessoris nostri. Dat: anno gratie 1262, pontificatus nostri anno 10."

This was the confirmation by Bishop Thomas of Leighlin (1252–1275) of Bishop William's instrument. See nos. 49 and 68, *infra*.

We have already met with *Alan Beg* (p. 11) and his son-in-law *William de Cauncton* (p. 21).

The church of *Duntnactathec* may perhaps, as Mr. Orpen suggests, be identified with the "ecclesia de villa Alani." mentioned in the Ecclesiastical

Taxation of Idrone.[1] He thinks this may have been Ballyellin, near Ullard (see no. 14).

Rathkenny[2] was the name of a church on the estate (apparently in co. Meath) of Nicholas le Petit in 1229.

Rathsenboth in the barony of Forth may, perhaps, be identified with Templeshanbo, in co. Wexford, the root of both being the word *seanbotha*, which means "old huts."

We have already had several of the witnesses: *Theobald Walter* the second (p. 32); *William Crassus* senior (p. 16), who appears here as seneschal of Leinster, an office which we know he held in 1224;[3] *Hamo Crassus* (p. 55); *Osbert*, prior of St. John's, Kilkenny (p. 27); and *Ralph*, the parson of Gowran (p. 11).

Ricardus Pincerna was probably connected somehow with the Walters, and perhaps we should call him Richard Fitz Walter (see p. 42). He attested, along with Thomas Fitz Antony (see p. 15), a grant by one Simon Power, which is included in the Register of St. Thomas' Abbey.[4]

The priory of *Inistioge* was founded for Austin canons, by Thomas Fitz Antony about 1210, and *Alured* of the priory of Kells, formerly of Bodmin (see p. 22), was chosen as the first prior of the new house. He witnesses several of our charters,[5] the latest in date being nos. 43, 44, about the year 1232. A fine stone effigy is still preserved in Inistioge church, which is thought to represent Alured, and to have been placed over his grave.[6]

Nicholas le Marchis or *Marsh* (see no. 42) was the owner of a fish-pond in the river Barrow, and probably held land adjoining.

The date of this charter (no. 13) is about 1224.

14.

Grant, for the good of his soul, &c., by Alan Beg, with the consent of William de Caunteton and his wife Cecilia, daughter and heiress of the said Alan, to the convent of Duiske (in the abbey of which he chooses a burial-place for himself), of half the church of Ullard, viz., all its tithes from his holdings in that vill.

Omnibus Sancte Matris Ecclesie filiis ad quos presens scriptum peruenerit Alanus Beg eternam in domino salutem.

Sciatis quod ego pro salute anime mee et uxoris mee Neste et omnium parentum predecessorum ac successorum meorum assensu et uoluntate Willelmi de Kantintune et uxoris sue Cecilie filie mee, heredum scilicet meorum, dedi et concessi, quantum ad ius pertinet patroni, et hac presenti carta mea confirmaui abbatie beate Marie de Valle Sancti Saluatoris ad sustentationem abbatis et monachorum ibidem deo seruientium medietatem ecclesie de Erard, scilicet decimas omnes et obuentiones ad eandem ecclesiam de terra quam in eadem

[1] C.D.I. v, p. 250. Odrone or Idrone (*Ui Drona*) is a large district in co. Carlow.
[2] C.D.I. i, 1673, 2037, 2163.
[3] *Gormanston Reg.*, f. 209. He also held it in or after 1235 (*ibid.*, f. 208).
[4] R.T.A. 208. [5] See R.T.A. 133 for a charter granted by him.
Carrigan, iv, 113.

habeo uilla pertinentes, liberas et quietas ab omni exactione quantum ad ius patroni pertinet in puram et perpetuam elemosinam possidendas.

Et ego et heredes mei warantizabimus easdem decimas prefatis abbati et monachis contra omnes homines in quantum potest patronus warantizare.

Elegi etiam mihi in eadem abbatia cum obiero sepulturam, unde et me ipsum super eiusdem abbatie obtuli altare.

Ut igitur predicta donatio mea et concessio rata in perpetuum et stabilis permaneat presens scriptum in testimonium censui tam sigilli mei quam predicti Willelmi de Kantintune munimine roborandum.

His testibus, Domino Theobaldo Pincerna Hybernie, Willelmo Crasso primogenito tunc Senescallo Lagenie, Willelmo Crasso iuniore, et Hamone Crasso fratribus ipsius, Ricardo Pincerna, Nicholao le Marchis, Osberto Priore Sancti Johannis de Kilkenni, Alueredo priore de Instioc, Randolpho persona de Baligauran, et multis aliis.

Both the seals have disappeared from this charter, which is of the same character and must be of the same date as no. 13, viz. 1224. The witnesses are the same, with the addition of William Crassus junior, whom we have had before (see p. 17), and who frequently attested the charters of William Marshal the younger.[1]

Erard or *Clard*, as it is now called, was a prebendal church in the diocese of Leighlin, about three miles to the north of the abbey of Graiguenamanagh or Duiske. An interesting doorway still remains among its ruins.

Among the Patent Rolls of 1225 [m 4] there are Letters of Protection for two years for men and things belonging to the Abbot of 'Dus,' which come into England.

15.

Confirmation to the convent of Duiske by William Fitz Maurice, for the good of his soul, &c., of two acres of land granted them by Richard of Flanders, and also of four acres adjoining on the east, granted by Matthew the son of Richard: reserving the service which Richard and Matthew are bound to pay on behalf of the monks.

Omnibus ad quos presens scriptum pervenerit Willelmus filius Mauricii eternam in domino salutem.

Noverit universitas vestra me pro salute anime mee et uxoris mee ac liberorum meorum, et antecessorum et successorum nostrorum concessisse et hac presenti carta mea confirmasse Deo et Sancte Marie et abbatie de Valle Sancti Salvatoris et filiabi Cisterciensis et monachis ibidem Deo seruientibus duas acras terre quas eis Ricardus Flandrensis dedit et incartauit, que iacent in dominio [illegible] terram dicte abbatie in Thulachenni et non

[1] See *Chartae* 34, 38; Carrigan, iii, 249; R.T.A. 119, 357

sunt diuise per aliquod fossatum ab illa terra; habent quoque a parte sui occidentali terram Willelmi de Valle:

Insuper eciam quatuor acras terre quas eisdem dedit et incartauit Matheus filius Ricardi Flandrensis, que iacent propinquiores duabus acris predictis ex parte orientali, et que sunt propriores terre dictorum monachorum ex parte meridionali, tenendas et habendas in puram et perpetuam elemosinam de me et heredibus meis libere et quiete ab omni seruicio et exactione et demanda ad me uel ad heredes meos pertinente, saluo seruicio tante terre quod mihi et heredibus meis predicti Ricardus Flandrensis et Matheus filius eius et eorum heredes pro monachis tenentur soluere, et saluis decimis ecclesiasticis.

Ut autem hec mea concessio et confirmatio stabilis in perpetuum perseueret presentem cartam sigilli mei appositione roboraui.

Hiis testibus, Willelmo Crasso primogenito, Willelmo Crasso juniore, Willelmo de Sancto Leodegario, Reimundo de Valle, Thoma de Kallan, Mauricio fratre meo, et aliis.

This is a confirmation of no. 11 by the over-lord, *William Fitz Maurice*. It may be dated about 1225.

William Fitz Maurice and his brother *Maurice Fitz Maurice* (who is a witness) were probably the sons of Maurice Fitz Maurice, 1st baron of Kiltrany.[1] The younger brother, Maurice, was baron of Kiltrany, and was drowned in 1268.[2] He was a witness to William Fitz Geoffrey's charter to Kells in 1215.[3]

We have met already the two brothers *William Crassus* or le Gras (pp. 17, 38); *William de St. Leger* (p. 21); and *Thomas de Callan* (p. 31).

For the family of *de Valle* cf. pp. 20, 30. *Reymund de Valle* appears about 1210,[4] and again between 1231 and 1243.[5]

16.

Grant by Richard de Marisco, for the good of his soul and of the soul of his wife Beatrice, &c., to the convent of Duiske, of three carucates of his land near Rathboghal, at a rent of ten shillings and gauntlets which he owes to his lords; but if his lords relieve him from the foreign service which goes with the land, he gives it to the convent without rent, and with liberty to have wood for buildings and licence for feeding forty hogs and pasture for twelve cows.

Uniuersis Sancte Matris Ecclesie filiis ad quos presens scriptum peruenerit Ricardus de Marisco salutem in domino.

Nouerit uniuersitas uestra quod ego pro salute anime mee et Beatricis uxoris mee et liberorum nostrorum necnon et omnium parentum nostrorum predecessorum et successorum dedi et concessi et hac presenti carta mea confirmaui ad honorem Dei et beate Matris eius omniumque sanctorum

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[1] See Burtchaell, *Journal* R.S.A.I., 1892, pp. 362–3.
[2] C.M.A. ii, 290, 316. [3] *Chartae*, &c., p. 17. [4] R.T.A. 120. [5] R.T.A. 186.

abbati et conuentui de Valle Sancti Saluatoris terram meam que dicitur Rathboghel et iacet pro tribus carrucatis terre, habendam et tenendam libere et quiete in puram et perpetuam elemosinam, saluo redditu decem solidorum et quarumdam cirotecarum quem debeo dominis meis de eadem terra, et saluo forinseco seruitio quod ad terram pertinet eandem.

Si uero domini mei predictum seruitium relaxauerint et redditum, maneant et monachi predicti inde liberi in perpetuum. Concessi etiam monachis eisdem com[munam] in bosco meo ut libere capiant in eo ligna quantum opus habuerint ad ignem et ad edificia sibi [construen]da, pannagium quoque quadraginta porcorum [ve]rum in perpetuum et pasturam duodecim uaccarum . . . . . .

Volo igitur et firmiter statuo ut predictus conuentus de Valle Sancti Saluatoris habeat et teneat predictam terram sicut predifinitum est liberam in perpetuum et quietam ab omni seruitio et exactione, que uel ad me uel ad heredes meos possit pertinere. Ego autem et heredes mei warantizabimus predictam terram conuentui memorato contra omnes homines et contra omnes feminas.

Ut igitur hec mea donatio et concessio rata in perpetuum et stabilis permaneat in ipsius testimonium presenti scripto meum appendi sigillum.

Hiis testibus, Nicholao de Ynteberghe, Henrico de Kernet, Reginaldo de Kernet, Robert de Kardiff, Rogero Russel, Philippo de Ynteberghe, Nicholao le Marchis, Symone Lupo, Ricardo Talun, et multis aliis.

Charters 17, 18, 41, 79 are all concerned with the land of *Rathboghal* or Rathbachlach (*Rath Bachlach*) in the barony of Bantry, co. Wexford, of which the overlord was Philip de Prendergast. Perhaps, as Mr. Goddard Orpen suggests, we should identify *Rathboghal* with his demesne of Monksgrange, 10 miles from Enniscorthy.

No. 16 must be prior to no. 17, which again seems to have been executed before the death of Philip le Prendergast in 1229 (p. 21). It may be dated about 1226.

Ricardus le Marchis or *Marsh* is also found with Raymund de Valle (p. 39), witness to a charter executed between 1223 and 1243.[1] He is described as "dominus Ricardus de Marisco, miles," i.e. knight, in no. 79.

For *Nicholas de Hinteberg* see p. 17. *Philip de Hinteberg* appears again about 1243.[2] Thomas Antony was also found already (p. 35) about 1223; and also *Nicholas le Marchis* or *Marsh* (p. 37) about 1224.

Robert de Cardiff or *Kerdyf*, who was a knight (*miles*), and owned lands in the neighbourhood of St. Mullins, co. Carlow (see nos. 16, 17, 18), appears in a dated charter of 1227 (no. 24). He is perhaps to be identified with 'R. de Cardiff' who appears about 1229 in one of the deeds of Christ Church, Dublin.[3] A Robert de Cardiff, probably of the same family, was Provost of New Ross in 1285.[4]

Roger Russell also appears again in nos. 46, 47.

Richard Talun or Tallon witnessed a charter of Thomas Fitz Antony,[5] which must have been executed before the latter's death in 1229 (see p. 15).

[1] R.T.A. 189; cf. C.D.I. i, 2651, 2678. [2] C.D.I. i, 2629; see p. 107, *infra*.
[3] No. 29. [4] See Hore's *New Ross*, p. 151. [5] C.M.A. ii, 191.

17.

Confirmation by Roger Galgheil, for the good of his soul and of the soul of Eleanor his wife, of the grant by Richard de Marisco to the convent of Duiske, of three carucates at Rathboghal in Bantry, which the said Roger held from the lord Philip de Prendergast, and Richard de Marisco from him.

Omnibus ad quos presens scriptum peruenerit Rogerus Galgheil salutem in domino.

Sciatis quod ego pro salute anime mee et Alianor uxoris mee ac liberorum nostrorum concessi et hac presenti carta mea confirmaui donationem quam Ricardus de Marisco fecit abbatie de Valle Sancti Saluatoris de terra que dicitur Rathbaglach et iacet pro tribus carrucatis terre in Bentrie quam ego tenui de domino meo Philippo de Prendegast et predictus Ricardus de me; quietumque clamaui memorate abbatie quicquid iuris uel redditus pertinebat ad me et ad heredes meos de terra memorata, quatinus abbatia predicta terram illam liberam in perpetuum et quietam ab omni exactione possideat.

In huius concessionis mee testimonium scripto presenti sigillum meum apposui.

His testibus, Philippo, Willelmo, et Philippo, filiis meis, Reginaldo Albo de Bristollo, Johanne filio eius, Henrico filio Henrici de Kildauan, et multis aliis.

This deed is concerned with the same grant as nos. 16 and 18, and may be assigned to the year 1226 or thereabouts.

Richard de Marisco or *Marsh* held the land of Rathboghal directly from *Roger Galgheil*, whose overlord was *Philip de Prendergast* (see p. 21). The consents of all three were necessary, if the convent was to be put into secure possession of the large tract of land which was transferred.

We meet some eighty years later with one John Galgal of Ballygally, who held land near New Ross of Roger Bigod, earl of Norfolk,[1] and he was probably of the same family as Roger Galgheil. This Roger had three sons, *Philip*, *William*, and *Philip*, who attest the grant.

Of *Reginald Albus*, or White, of Bristol, and his son John, we can discover nothing. *Henry Fitz Henry* of Kildavan (which is on the borders of co. Carlow and co. Wexford) may possibly be the man of that name who was seneschal of co. Wexford in 1259.[2] A Henry Fitz Henry also attested William Fitz Geoffrey's charter to Kells in 1215.[3]

[1] Hore's *New Ross*, 169. [2] See no. 62. [3] *Chartae*, &c., p. 17.

18.

Grant by Philip de Prendergast and Matilda de Quency his wife, for the good of their souls, &c., to the convent of Duiske, of Rathboghal in Bantry, with three carucates of land in fee, which Roger Galgheil held from the said Philip and which was given by Richard de Marisco to the said convent.

Uniuersis Sancte Matris Ecclesie filiis ad quos presens scriptum peruenerit Philippus de Prendelgast eternam in domino salutem.

Nouerit uniuersitas uestra me, pro salute anime mee et anime Matildis† de Quinci uxoris mee et antecessorum et successorum nostrorum, ex consensu et uoluntate predicte Matildis de Quinci uxoris mee, concessisse et hac presenti carta mea confirmasse Deo et abbatie beate Marie de Valle Sancti Saluatoris et monachis ibidem Deo seruientibus Ratbachelach cum tribus carrucatis terre in feodo de Bentrie; scilicet illam quam Rogerus Galgeyhel tenuit de me et Ricardus de Marisco eisdem monachis dedit, et incartauit.

Preterea dedi et concessi et confirmaui memoratis monachis redditum et omne seruitium quod ad me uel ad heredes meos de terra predicta pertinebat in puram et perpetuam elemosinam.

Volo igitur ut predicti monachi habeant et teneant dictam terram plenarie et integre libere et quiete ab omni seruitio seculari et exactione.

Et ut hec donatio mea concessio et confirmatio stabilis et inconcussa in perpetuum permaneat presenti scripto sigillum meum apposui.

His testibus, Ricardo de Prendelgast, Ricardo de Huscard, Roberto de Huscard, Willelmo de Prendelgast, Radolpho de Sumeri, Roberto Lupo, Ricardo de Marisco, R. filio Walteri, Th. Boscher, Ada Cod, A. clerico, et multis aliis.

The seal is still attached to this instrument[1] (see Plate II).

For *Philippus de Prendergast* and *Matilda de Quency* his wife, see p. 21. He held the Duffrey estates in co. Wexford. *Richard de Prendergast*, who must have been one of the same family, and *Adam Cod*, a Wexford name, appear elsewhere as attesting a deed in the Register of St. Thomas' Abbey.[2] *William de Prendergast* appears again about 1230 and 1259.[3]

The name of *Huscard* survives in the parish of Ballyhuskard, in the barony of Ballaghkeen, co. Wexford; and *Robert de Huskard* and *Thomas Boscher* appear as holders of land near New Ross in the deforestation charter of Richard Marshal, earl of Pembroke (p. 32), in 1233.

For *Richard de Marisco* see p. 40. Perhaps we may equate *R. Fitz Walter* with Ricardus Pincerna of Charter 13 (see p. 37).

Robert Lupus or de Low appears again in a deed relating to co. Wexford;[4] cf. p. 15. *A. the clerk* may be 'Augustine, the clerk,' who attests charters about the same date.[5]

[1] There is a note of this charter in E.
[2] R.T.A. 185.
[3] Charters 38 and 62. See also R.T.A. 186, 189.
[4] Hore's *Ferns*, p. 350.
[5] R.T.A. 186, 189.

The co. Wexford family of *De Sumeri* or Sutton appear half a dozen times in the Duiske charters (see nos. 36, 38, 41, 50, 51). There were three brothers, Adam (whose wife was Clare), Ralph, and David. Of these, Adam had four sons, Robert, David (whose wife was Margaret), Ralph, and William. We shall meet with them all again. Here we have as a witness, the elder *Ralph de Sumeri*: he appears elsewhere[1] before 1224, and in 1230 (see no. 38). The instrument before us may be dated about 1226.

We next come to a series of deeds which direct that the small and poor abbey of Killenny (see p. 4) shall be united to the prosperous abbey of Duiske. Although only twenty years in existence, the convent of Duiske was now a rich corporation, endowed with many broad acres, and enjoying the powerful patronage of Earl William Marshal and his great tenants. There was no need for another Cistercian house so near as Killenny; but, as we shall see, the union of the two provoked a good deal of opposition, and was especially distasteful to Jerpoint Abbey, of which Killenny was a daughter house.

The procedure necessary for absorbing Killenny in Duiske was elaborate. First, the abbot of Froidmont, who came from France to visit formally the Irish Cistercian houses, directed the union of the two abbeys (no. 19); then his recommendation was confirmed by the abbey of Clairvaux, the mother house of Froidmont (no. 20); next the abbots of Citeaux, and of the four elder 'daughters of Citeaux' (see p. 3), viz., la Ferté, Pontigny, Clairvaux, and Morimund, added their final confirmation (no. 21); and lastly, the convent of Citeaux sent a formal order to the convent of Duiske on the subject (no. 22). And, to remove all doubt, Earl William Marshal gave a formal certificate of his approval (no. 25), and also the bishop of Leighlin. See nos. 32, 33.

19.

B., abbot of Froidmont, visiting the Irish Cistercian houses with full powers to reduce the poorer houses to be granges, to unite houses, to interdict, suspend, and excommunicate all gainsayers and even the monasteries themselves, finding that the abbey of Killenny is in debt so that it can subsist no longer, and that the monks are obliged to beg, directs the transfer of Killenny with its property to Duiske, ordering that the abbot and monks of the former house be well treated. He gives the abbot of Bective power to excommunicate, expel, or, if necessary, to punish by the secular arm in case of gainsaying or disobedience.

Dated at Dublin, 22 July, 1227.

Uniuersis presentes literas inspecturis Frater B. Frigidi Montis dictus abbas eternam in domino salutem.

[1] R.T.A. 221.

Ad uniuersitatis uestre notitiam uolumus peruenire quod missi sumus a capitulo generali Cisterciensi ad abbatias Hybernie uisitandas in plenitudine potestatis: Videlicet ut possimus inter cetera pauperiores maxime abbatias in grangiis redigere, plures in unam coniungere, et omnia alia agere secundum quod nobis uisum fuerit expedire, contradictores singulos et etiam ipsos conuentus et ecclesias interdicere susspendere† et excommunicare.

Intelligentes igitur manifeste quod abbatia de Valle Dei filia Jeripontis adeo debitis et aliis grauaminibus sit oppressa ut nullatenus iamdudum possit subsistere, in tantum quod tam monachi quam conuersi illius domus, pro defectu temporalium ordinem seruare, nec hosspitalitatem† facere ualent, sicut ex ipsorum quoque testimonio didicimus, sed in confusionem ordinis per seculum discurrere et necessaria mendicare coguntur; pensatisque aliis multis utilitatibus et honestatibus, ipsam domum de cetero non esse abbatiam auctoritate dicti capituli decernimus eandem, cum omnibus personis grangiis edificiis et aliis rebus suis immobilibus, et mobilibus, et cum omni iure suo, proxime dicatio Sancti Saluatoris ordinis nostri prorsus coniungentes et incorporantes ita quod predicti monachi et conuersi mutent, immo magis fateant eandem professionem: quos ut benignius et honorabilius ceteris tractent quamdiu uixerint, abbati et conuentui firmiter et districte precipimus.

Et ad omnia exequenda et specialiter ad ponendum dictos abbatem et conuentum Sancti Saluatoris in corporalem et uetam atque perpetuam possessionem, [illegible] uenerabilem et dilectum nostrum abbatem de Beatitudine, quem pro aliis nobis negotiis ad partes destinamus illas, auctoritate predicti capituli duximus [illegible] omnes contradictores et inobedientes, quod absit, excommunicare, et alios prout uiderit modo punire, et de dicto loco expellare etiam per brachium seculare si necessarium erit.

Datum apud Deuisium† anno gratie millesimo ducentesimo uicesimo septimo in festo beate Marie Magdalene.

A *précis* of this important document is preserved in E, F.

The abbey of Froidmont was in the diocese of Beauvais. The abbot's name was *Bernard*.[1]

20.

Confirmation by R. abbot of Clairvaux and his convent, of the union of Killenny and Duiske, directed by the abbot of Froidmont.

Dated at Citeaux, at the General Chapter, 1227.

Venerabilibus et in Christo dilectis abbati et conuentui Sancti Saluatoris [illegible] R. [illegible] abbas Clarenallensis totiusque eiusdem loci conuentus salutem in Christo.

[illegible] inteligentes uenerabilem coabbatem nostrum Fr[illegible] capitulo generali pro reparatione ordinis et

[1] *Gallia Christiana*, ix, 832.

animarum salute uobis contulisse abbatiam Vallis Dei cum omni iure suo, ita ut de cetere† nunc sit abbatia que per se commode subsistere non poterat, sed ad uos pleno iure pertineat cum omnibus ad se pertinentibus, predictam collationem et unionem presentibus literis nostris confirmamus, monentes et mandantes quatinus sic studeatis in caritate proficere et regularibus disciplinis, ut semper gaudeamus in domino uos talibus beneficiis ampliasse.

Datum anno gratie MCCXXVII, tempore capituli generalis apud Cistercium.

The seals have disappeared from this document. The abbot of Clairvaux in 1227 was Ralph 'de Pinis seu de Peyrinis.'[1]

21.

Confirmation by the abbots of Citeaux, La Ferté, Pontigny, Clairvaux, and Morimund, of the reduction of Killenny to a grange, and its union with Duiske, as directed by the abbot of Froidmont.

Dated at Citeaux, at the General Chapter, 1227.

Fratres G. Cistercii . . . de Firmitate . . . de Pontiniaco . . . de Clareualle et . . . Morimundo dicti abbates, uenerabilibus et in Christo dilectis T. co-abbati suo Sancti Saluatoris in Hybernia et eiusdem loci conuentui salutem in Christo.

Cum vere religionis augmento intelligentes plane uenerabilem B. co. abbatem nostrum Frigidi Montis, pro reparatione ordinis nostri in Hybernia et animarum salute, auctoritate nostra et totius capituli generalis, abbatiam Vallis Dei iam in grangiam redactam, eo quod per se commode subsistere non poterat, uobis et domui uestre cum omni iure suo in perpetuum contulisse, predictam collationem et unionem a predicto co-abbati nostro iam factam auctoritate presentium confirmamus, monentes et mandantes quatinus sic studeatis in caritate proficere et regularibus disciplinis studiosius inuigilare, ut semper gaudeamus in domino uos talibus beneficiis ampliasse. In huius siquidem rei testimonium presens scriptum sigillorum nostrorum munimine roborauimus.

Datum est autem hoc tempore capituli generalis anno gratie MCCXXVII apud Cistercium.

Two seals are gone. The seal of the abbot of Citeaux remains (see Plate II). It represents the abbot in vestments, in his right hand a crozier, and in his left hand an open book, the legend being SIGILLVM ABBATIS CISTERCIENSIS.[2] His name was *Gautier* or Galcher de Ochies. The names of the abbots of La Ferté, Pontigny, and Morimund were Simon, Peter, and Guy respectively.[3]

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[1] *Gallia Christiana*, iv, 805.

[2] See also Brit. Mus. Cat. of Seals, vol. v, p. 256, no. 18524.

[3] *Gallia Christiana*, iv, 992, 1023, 818; xii, 445.

22.

Letters from Gautier, abbot of Citeaux, and the General Chapter to the abbot and convent of Duiske confirming the union of Killenny with Duiske, as directed by the abbot of Froidmont.

Dated 1227.

Venerabilibus et in Christo dilectis abbati et conuentui Sancti Saluatoris in Hybernia Frater G. dictus abbas Cisterciensis totusque conuentus abbatum capituli generalis salutem in Christo.

Cum uere religionis augmento intelligentes uenerabilem coabbatem nostrum Frigidi Montis pro reparatione ordinis et animarum salute uobis contulisse abbatiam Vallis Dei cum omni iure suo, ita ut de cetero non sit abbatia que per se commode subsistere non poterat, sed ad uos pleno iure pertineat, cum omnibus ad se pertinentibus, predictam collationem et unionem presentibus litteris confirmamus, monentes et mandantes quatinus sic studeatis in caritate proficere regularibus disciplinis ut semper gaudeamus in domino uos talibus beneficiis ampliasse.

Datum anno gratie millesimo CCXXVII tempore capituli generalis.

A small piece of the seal is left.

An early transcript of this document is extant, as well as the original instrument.

Paragraph 13 of the Statutes of the General Chapter of the Cistercians for the year 1227 contains the record: "abbatia de Valle Dei huc usque filia Geripontis, quia per se subsistere non ualet, unitur abbatiae Sancti Salvatoris cum omnibus bonis suis."[1]

23.

Agreement between Peter, bishop of Ossory, and his chapter with the abbot and convent of Duiske, confirming the latter in the possession of Tikerlevan, with its church, &c., for an annual rent of 20 shillings, a chaplain to be provided for the church, and all episcopal dues being reserved.

Dated 6 December 1227.

Hec est conuentio facta inter Petrum episcopum Ossoriensem et capitulum cathedralis ecclesie Ossoriensis diocesis ex una parte et abbatem et conuentum Sancti Saluatoris ex altera;

Videlicet quod idem episcopus assensu capituli sui concessit et confirmauit dictis abbati et conuentui totam terram de Stachmackarlewan cum ecclesia et aliis pertinentiis suis in proprios usus, de quibus fuerunt in possessione tempore confectionis huius cyrographi, et cum omnibus natiuis et eorum sequelis existentibus in eadem terra a tempore quo hoc cyrographum confectum fuit in perpetuum; qui inde reddent annuatim ecclesie cathedrali de

[1] Printed in Martene, *Thesaurus*, vol. iv, s. a. 1227.

Kilkenni uiginti solidos in duobus anni terminis, uidelicet in Inuentione Sancte Crucis decem solidos et in festo Sancti Kannici decem solidos; salua competente sustentatione capellani qui eidem ecclesie deseruiet per eosdem, et saluis oneribus episcopalibus.

Et ut hec conuentio rata et inconcussa in posterum permaneat, tam episcopus Ossoriensis et capitulum cathedralis ecclesie de Kilkenni quam abbas et conuentus eam sigillis suis hinc inde appositis corroborauerunt. Confectum fuit hoc cyrographum die Sancti Nicholai anno dominice incarnationis millesimo ducentisimo uicesimo septimo.

Hiis testibus, Dominis R. de Portu Sancte Marie, W. de Voto, et W. de Wetheni, abbatibus, et dominis A. de Instioch, et O. de Sancto Johanne de Kilkenni, prioribus, R. rectore ecclesie de Baligauran, T. rectore ecclesie de Kallan, Domino J. Marescallo, et R. de Hyda tunc Senescallo Lagenie, Willelmo de Druhulle, et R. de Kardif militibus, et multis aliis.

There are extant two copies of this charter. The Bishop's seal and the Chapter seal remain in partial preservation in both copies.[1] The charter is a confirmation of no. 8.

For *Peter, bishop of Ossory*, see p. 34. We have met several of the witnesses before, viz.: *Alured, prior of Inistioge*, p. 37; *Osbert, prior of St. John's*, p. 27; *Ralph, rector of Gowran*, p. 11; *Thomas, rector of Callan*, p. 31; *John Marshal*, p. 15; *William de Druhelle*, p. 31; and *Robert de Cardiff*, p. 40.

Roger de Hyda obtained letters of protection on 7 May, 1228, having gone to Ireland in the service of William Marshal, earl of Pembroke.[2] He appears as seneschal of Leinster in 1229,[3] and 1231–2.[4] He witnessed the younger William Marshal's charters to St. John's Priory[5] (in 1223) and to Carlow[6] (in 1225).

The Abbey *de Portu S. Mariae* was Dunbrody (p. 4); *de Voto* was Tintern (p. 4); and *Wetheney* was Abingdon in co. Limerick.

24.

Confirmation by Peter, bishop of Ossory, and his chapter, to the convent of Duiske, of the church of Tulachany with the chapels of Annamult and Grange Castri, and the tithes thereof, for the annual rent of one mark, as arranged by Hugh, bishop of Ossory.

Dated 6 December, 1227.

Universis presens scriptum inspecturis P. dei gratia Ossoriensis episcopus eternam in domino salutem.

Quoniam ea que perpetua firmitate gaudere debent ad perpetuam memoriam puplice debent commendari scripture, ad uniuersitatem uestram peruenire uolumus, nos diuini amoris intuitu et sacrosancte religionis obtentu et assensu capituli ecclesie nostre cathedrali confirmasse abbati et conuentui de Sancto

[1] For a reproduction of the Chapter Seal of Ossory, see Ware's *Ireland*, i, 397.
[2] C.D.I. i, p. 1597. [3] R.T.A. 339.
35th Report Deputy Keeper of Records, Ireland, p. 33. [5] Carrigan, iii, 249.
Chartae, &c., p. 38.

Saluatore ecclesiam de Tulachenny cum omnibus pertinentiis suis et cum decimis grangie sue, salua una marca quam dicti abbas et conuentus reddent annuatim ecclesie cathedrali de Kylkenny post obitum Odonis decani de Kylkenny, sicut conuenit inter Hugonem bone memorie antecessorem nostrum et capitulum cathedralis ecclesie sue et dictum abbatem et conuentum, et prout continetur in carta eorum quam habent de eodem episcopo:

Confirmauimus etiam eisdem capellam de Athermolt et capellam de Grangia Castri cum omnibus earum pertinentiis et cum decimis earundem grangiarum, saluis debitis seruitiis que debebantur de eisdem capellis tempore confectionis huius carte, ut omnia predicta habeant in proprios usus.

Et ut hec nostra confirmatio rata sit et stabilis, eam presentis scripti testimonio et sigilli nostri appositione una cum sigillo capituli nostri dignum duximus roborare. Confecta fuit hec carta die Sancti Nicholai anno dominice incarnationis millesimo ducentisimo uicesimo septimo.

Hiis testibus, Dominis R. de Portu Sancte Marie, W. de Voto, et W. de Wethemy archidiaconis et Dominis A. de Instioch, et O. de Sancto Johanne de Kylkenny, presbiteris, J. Marescallo I et R de Hyda tunc senescallis Lagenie, Willelmo de Druhelle, et R. de Kaerdif, militibus, et multis aliis.

There are three extant copies of this charter, and most of the seals remain attached. It was confirmatory of the grants set out in nos. 7, 9, and 10; see also p. 20.

The witnesses are the same as in Charter 23, which was executed on the same day, except that the rectors of Gowran and Callan do not attest this.

For the situation of Annamult and Grange Castri, see p. 18.

25.

Confirmation by William Marshal, earl of Pembroke, of the union of the abbey of Killenny with the abbey of Duiske, as decreed by the General Chapter of the Cistercian Order (in no. 22).

Dated at Caverisham,[1] 19 Jan. [1228].

Omnibus presens scriptum uisuris uel audituris W. Marescallus Comes Pembroc salutem.

Nouerit uniuersitas uestra nos diuine pietatis intuitu confirmasse unionem abbatie de Killenny cum omni iure suo et omnibus rebus ad ipsam pertinentibus cum abbatia de Valle Sancti Saluatoris, quam dominus pater noster fundauit, sicut continetur in statuto et sanctione domini abbatis et capituli generalis Cisterciensium, celebrati anno uerbi incarnati millesimo ducentesimo uicesimo septimo.

Et ut ista confirmatio imperpetuum firma perseueret eam presenti scripto et sigilli nostri appositione roborauimus.

[1] Near Reading.

Testibus, Johanne de Erleston, Stephano de Hereford, Godefrido fratre ipsius, Hamone le Gras, Willelmo de Rugdone, Francisco le Treis, Magistris Hugone et Roberto clericis, et multis aliis.

Datum apud Cauerisham XIIII Kalend: Febr:

The seal has disappeared from this charter, of which an early transcript is also extant in a collection made up of Charters 28, 29, 30, 35, 58, 25, 54.

John de Erleston is probably the John d'Erlée (see p. 20) who was a signatory to William Marshal the elder's Foundation Charter. It would be specially fitting that he should be a witness to this important confirmation by William Marshal's son.

Stephen de Hereford and his brother *Godfrey* were sons of Adam de Hereford, a young follower of Richard, earl of Clare (Strongbow), who was granted lands at Rathdowney, Queen's Co., and also in co. Kildare by his lord.[1] *Stephen* appears again as a witness to Richard Marshal's Deforestation Charter of New Ross in 1233,[2] and also as holder of lands at Rathdowney in 1246.[3]

For *Hamo Crassus* or le Gras, see p. 35.

Francis le Tyeis held Marshal lands at Damach in co. Kilkenny in 1246[4].

Hugh and *Robert*, clerks, witnessed the charter to Carlow given by William Marshal the younger in 1225.[5]

26.

Confirmation by Henry, archbishop of Dublin, of the rescript of Peter, bishop of Ossory [no. 24], confirming the convent of Duiske in the possession of Tulachany, Tikerlevan, Annamult, and Grange Castri, for the annual rent of one mark to be paid to the cathedral Church of St. Canice, Kilkenny, after the death of Odo, dean of Kilkenny.

Uniuersis Christi fidelibus ad quos presens scriptum peruenerit Henricus dei gratia Dublinensis ecclesie minister humilis eternam in domino salutem.

Ad sacre religionis institutionem et incrementum, sicud ex officii debito nobis incumbit propensius inuigilare, ita ut instituta fructificent, tenemur studiosius procurare, et precipue uiros religiosos pia et paterna affectione protegere et confouere; inspecta siquidem carta uenerabilis in Christo fratris et suffraganei nostri P. Ossoriensis episcopi, per quam dilectis in Christo filiis abbati et monachis de Sancto Saluatore quasdam terras et quedam beneficia pietatis intuitu concessit et confirmauit, eadem beneficia et terras predictas auctoritate metropolitici, prout in carta memorati episcopi et ipsius cyrographo continetur, una cum ceteris beneficiis que eisdem pia fidelium largitione collata fuerunt aut in posterum iuste conferentur concedimus et confirmamus.

[1] R.T.A. 102, and Carrigan, *Introd.*, 6. [2] C.M.A. ii, 157. [3] C.M.A. ii, 405.
[4] C.M.A. ii, 405. [5] *Chartae*, &c., p. 38.

Et eosdem et domum suam cum terris omnibus possessionibus et beneficiis suis sub speciali protectione nostra auctoritate predicta suscipimus. A prefato siquidem episcopo per cartam et cyrographum que inspeximus concessa et confirmata beneficia propriis duximus exsponenda† uocabulis.

Videlicet; ecclesiam de Thulachenni cum omnibus pertinentiis suis et cum decimis grangie quam ibi habent, salua una marca quam soluent ecclesie cathedrali de Kylkenny post obitum Odonis decani de Kylkenny, et capellam de Aetheremolth, et capellam de Grangia Castri cum omnibus earum pertinentiis et cum decimis earumdem grangiarum, saluis debitis seruitiis que debebantur de eisdem capellis tempore confectionis carte memorati episcopi;

Totam etiam terram de Staemakhurlewan cum ecclesia et aliis pertinentiis suis in proprios usus cum omnibus natiuis et eorum sequelis existentibus in eadem terra, qui inde reddent annuatim ecclesie cathedrali de Kylkenny viginti solidos, salua competenti sustentatione capellani qui eidem ecclesie deseruiet per eosdem, et saluis honeribus episcopalibus.

Hec quidem et alia prout in predictis carta et cyrographo continetur predictis abbati et monachis in proprios usus suos conuertenda auctoritate nostra concedimus et confirmamus. In cujus rei testimonium presenti scripto sigillum nostrum apponi fecimus.

Hiis testibus, Domino W. decano Sancti Patricii Dublinensis, Magistro Thoma Cancellario et R. Litterel Thesaurario, Waltero de Lundres, Willelmo de Tyron, Magistro Johanne de Tantona Petro capellano, Warino clerico, et multis aliis.

This charter must be later than 6 December, 1227 (the date of no. 24, which it confirms), and earlier than Nov., 1228, when Archbishop *Henry de Londres* died, after an episcopate of sixteen years. For Peter Malveisin, bishop of Ossory, see p. 34.

This charter was evidently granted at Dublin, the witnesses being all connected with St. Patrick's Cathedral, which had been raised to the status of a cathedral church early in the thirteenth century.

William Fitz Guy, the first Dean, and *Thomas de Castello*, the first Chancellor, had both been nominated by Archbishop Henry in 1219. *Robert Luttrell* had become treasurer in 1223. *Walter de London*, *William de Piro*, and *John de Taunton* were canons, and appear in many documents of this period.[1]

Peter the chaplain and *Warin* were among the witnesses attesting Archbishop Henry's charter of 1219, forming the Precentorship, Chancellorship, and Treasurership; Peter appearing again as late as 1242.[2]

[1] See R.T.A. 169, 328.

[2] In Archbishop Alan's Register. All these names appear in the Chartulary of St. Patrick's, commonly called "Dignitas Decani"; e.g., see nos. 2, 20 (Proc. Roy. Ir. Academy, 1905, p. 481).

27.

Inspeximus by the abbots, T. of Neht, R. of Tintern, T. of Kingswood, and T. of Duiske of (1) a Commission from G., abbot of Citeaux, and the General Chapter, to the abbot of Clairvaux or his deputies to visit the Cistercian houses in Ireland, with plenary powers; (2) an appointment by R., abbot of Clairvaux, of the abbot of Stanley as his deputy; and (3) a mandate by G., abbot of Citeaux, and the General Chapter to the Cistercian houses in Ireland to recognize the powers thus given to the abbot of Stanley or his deputy;

All these documents being of the year 1228.

Venerabilibus et in Christo dilectis uniuersis co-abbatibus suis prioribus et conuentibus ceterisque personis ordinis Cisterciensis in Hibernia constitutis necnon et omnibus Christi fidelibus, Fratres T. et R. et T. et T. de Neht et Tinternia et Kingaswed et Sancto Saluatore abbates salutem in domino.

Uniuersitati uestre presentibus patefacimus nos uenerabilium patrum duorum uidelicet Cistercii et Clareuallis totiusque conuentus abbatum capituli generalis autentica subscripta inspexisse in hunc modum:

[1.] Frater G. dictus abbas Cistercii totusque conuentus abbatum capituli generalis uenerabilibus et in Christo dilectis uniuersis co-abbatibus suis prioribus subprioribus et conuentibus ceterisque personis ordinis Cisterciensis in Hibernia constitutis necnon et omnibus Christi fidelibus salutem in domino.

Uniuersitati uestre presentibus literis innotescat nos abbati Clareuallensi et illi uel illis quos secum duxerit assumendos uel uices suas committere per uniuersas domos Hibernie ordinis nostri plenariam potestatem commisisse, ita quod possint sine alicuius contradictionis obstaculo per omnes predictas domos, irrequisitis patribus abbatibus, abbatias quotienscumque uoluerint uisitare, abbates deponere, cessiones eorum recipere, et substituere personas, monachos et conuersos amittere et expellere, gentem mutare ad quoscumque domos, ordinis nostri decreuerint destinare, abbatias plures coniungere, aliis abbatiis eiusdem deriuationis pro reformatione ordinis perpetuo in filias dare, abbatias transplantare et in grangias redigere, ecclesias et contradictores interdicto subponere suspendere et excomunicare, personas expellare, et si necessitas fuerit per brachium seculare, et omnia ordinare et agere sicut crediderint expedire; unum uobis omnibus et singulis in uirtute obedientie districte precipimus, quatenus eidem abbati uel uices eius agenti uel agentibus tanquam nobis in omnibus obediatis semper quousque redierint ad propria.

Rogamus insuper uniuersos Christi fideles quatenus sepedicto abbati et illi uel illis quos secum duxerit assumere uel uices suas committere taliter assistere dignemini, ut ordo noster ope et opere uestro in dicta terra refloreat et in statum debitum redigatur; scientes propter hoc honorum omnium que in ordine nostro fiunt uos factos esse participes.

Datum anno gratie milessimo ducentesimo uicesimo octauo tempore capituli generalis.

[2.] Venerabilibus et in Christo dilectis uniuersis co-abbatibus suis prioribus et conuentibus ceterisque personis ordinis Cisterciensis in Hibernia constitutis necnon et omnibus Christi fidelibus Frater R. dictus abbas Clareuall: salutem in domino.

Uniuersitati uestre presentibus literis innotescat nos uenerabili co-abbati nostro de Stanleg in Wiltesyr et illi uel illis quos secum duxerit assumere uel uices suas committere per uniuersas domos Hibernie ordinis nostri, sicut a capitulo generali nobis est commissum, plenariam potestatem commisisse; ita quod possit uel uices eius agenti sine alicuius contradictionis obstaculo per omnes predictas domos, et irrequisitis patribus abbatibus, quotienscumque uoluerit abbatias uisitare, abbates deponere, cessiones eorum recipere, uel substituere personas, monachos et conuersos amittere et expellere, gentem mutare adquoscumque domos ordinis nostri decreuerint destinare, abbatias plures in unam coniungere aliis abbatibus eiusdem deriuationis pro reformatione ordinis perpetuo in filias dare, abbatias transplantare et ingrangias redigere, ecclesias et contradictores interdicto subponere suspendere et excommunicare, personas expellere, et si necessitas fuerit per brachium seculare, et omnia ordinare et agere sicut uidetur expedire; unum uobis omnibus et singulis in uirtute obedientie districte precipimus quatenus eidem abbati uel uices eius agentibus tanquam nobis in omnibus obediatis semper quousque ad propria redierint. Rogamus insuper uniuersos Christi quatenus sepedicto abbati et ille uel illis quos secum duxerit assumere uel uices suas committere taliter asistere† dignemini, ut ordo noster ope et opere uestro in dicta terra refloreat et in statum debitum redigatur; scientes propter hoc bonorum omnium que in ordine nostro fiunt uos factos esse participes.

Datum anno domini millesimo ducentesimo uicessimo octauo die beati Sequani abbatis.

[3.] Venerabilibus et in Christo dilectis co-abbatibus suis prioribus et conuentibus Cisterciensis ordinis Frater G. dictus abbas Cistercii totusque conuentus abbatum capituli generalis eternam in domino salutem.

Mandamus uobis in uirtute obedientie districte precipientes quatenus ad ammonitionem et uoluntatem uenerabilis co-abbatis nostri de Stanleg in Wiltesir uel eius uices agentis eatis cum eo et cum eo ad prosequendum negotium Hiberniense, secundum quod ei uisum fuerit expedire; et si quos de uestris monachis uel conuersis uoluerit ad partes Hibernie destinare, uel ibi sint perpetuo uel ad tempora, eidem abbati uel eius uices agenti libere concedatis, compellantes eos ad uoluntatem ipsius abbatis.

Datum anno gratie millesimo ducentesimo XXVIII tempore capituli generalis.

Nos igitur predictorum patrum autenticis inspectis, presentem Wallie guerram diuersaque pericula ex uariis causis emergentia pro oculis habentes, et tanto negotio debita discretione et diligentia pro posse nostro tute prouidere cupientes, dictis autenticis tutissime reconditis, transcripta eorumdum uerbo

ad uerbum fideliter exarata cum sigillorum nostrorum testimonio, uobis recitanda ad maiorem fidem faciendam, m. . . . decreuimus.

The date of the Inspeximus, which is in the usual form (see p. 64), is not given, but the reference to the war in Wales would suggest that it was made about 1282, when Edward I subdued the Welsh.

The seals of the four abbots have disappeared. *Neht* (or Neath) and *Kingswood* were in Glamorganshire and Gloucestershire respectively. The *Tintern* Abbey here mentioned was the elder Tintern in Monmouthshire.

The abbot of Stanley, who appears in these documents as Visitor of the Irish Cistercian houses in 1228, was a remarkable person. His name was *Stephen de Lexinton*, and he was a man of high character as well as of good family. He entered the monastic life at the suggestion of Edmund Rich, archbishop of Canterbury, whose disciple he was; and having joined the Cistercian Order about 1221, he was very soon appointed abbot of Stanley in Wiltshire. In the year after he acted as Visitor of the Cistercians in Ireland, that is, in 1229, he was elected abbot of Savigny, an abbey near Coutances in the diocese of Avranches. On 6 December, 1243, he was elected abbot of Clairvaux, and among his many activities while ruling that great monastery was the foundation of a house in Paris for scholars of his order. He died some time after 1256.[1]

The abbot of Citeaux was *Gautier*, or Walter, and the abbot of Clairvaux was *Ralph* (see p. 45).

28.

Composition of dispute between R., bishop of Leighlin, W., archdeacon, and the chapter of Leighlin, of the one part, and the abbot and convent of Duiske of the other part, through the mediation of the abbots of Buildwas and Stanley, and John de Taunton, canon of St. Patrick's, Dublin. The convent grants to the bishop of Leighlin for the time being two carucates of land, near the manor of Fynnore, viz., one carucate which the bishop formerly held from the convent of Killenny, and the other carucate extending by the Barrow and by the land which William Crassus held from the monks of Killenny; and the convent further grants to the chapter of Leighlin the tithes of these two carucates with the church of Fynnore, which W., the archdeacon, holds from the chapter: with the concurrence of S., abbot of Stanley, Visitor-General of the Cistercian Order in Ireland. The convent to be freed for ever from procurations and exactions, provided that they erect a church in the said territory of Killenny, which shall have a secular chaplain with cure of souls, to be presented by them to the bishop or archdeacon: the convent to have the tithes, the bishop of Leighlin renouncing all further claims against the abbey of Duiske, arising out of its absorption of Killenny.

Dated at Fynnore, 6 June, 1228.

[1] See D.N.B. s. v. 'Lexinton, Stephen de.'

Omnibus Sancte Matris Ecclesie filiis ad quos presens scriptum peruenerit R. dei gratia Lechelinensis episcopus et W. archidiaconus eiusdemque ecclesie capitulum salutem in domino.

Scire uolumus uniuersos quod inter nos ex una parte et abbatem de Valle Sancti Saluatoris eiusdemque loci conuentum ex altera, super remotione abbatie de Killenny et omnibus aliis querelis que nobis competere poterunt ratione prefate remotionis, mediantibus uiris uenerabilibus S. de Bildewas, S. de Stanleg abbatibus et Magistro Johanne de Tantona canonico Sancti Patricii Dublinensis, controuersia quieuit sub hac forma:

Videlicet quod dicti abbas et monachi, pro bono pacis et mutue in perpetuum inter prefatas ecclesias dilectionis, dederunt et concesserunt deo et ecclesie nostre et episcopis qui pro tempore substituentur duas carucatas terre iuxta manerium de Fynhawere, illam uidelicet carucatam quam dictus episcopus de domo de Kyllenny ad firmam temporalem prius tenuit, et aliam carucatam terre mensuratam inter terram eandem pro parte et iuxta pro parte iacentem que extendit se in latitudine per Baruwe et in longitudine per terram quam tenuit Willelmus Crassus de monachis de Kyllenny;

Preterea dederunt et concesserunt dicti abbas et monachi prefato capitulo Lechelinensi omnes decimas duarum carucatarum pronominatarum, ad ecclesiam de Finhewere quam dictus W. archidiaconus Lechelensis de dicto capitulo tenet resignandas, concurrente ad hoc consensu patris abbatis dicti, uidelicet uiri uenerabilis Domini S. de Stanleg in Wiltesirhe tunc tempore uisitatoris generalis ordinis Cisterciensis in Hybernia in plenaria potestate.

Memorati uero abbas et monachi de Valle Sancti Saluatoris immunes erunt in perpetuum a prestatione omnium modarum decimarum et a procurationibus et omnibus exactionibus que fieri poterunt ratione iuris ordinarii. Ita tamen quod ecclesiam erigant in dicto territorio de Kyllenny ubi uiderint expedire, in qua tenentes et seruientes eorum diuina percipiant et ecclesiasticam habeant sepulturam: Cui siquidem ecclesia deseruietur per capellanum secularem qui dicto episcopo uel archidiacono per ipsos presentabitur et respondebit tantummodo de cura animarum. Item vero monachi dicto capellano necessaria ministrabunt, et ecclesiam illam et decimas et obuentiones et omnia alia parochialia integre tam a tenentibus quam a seruientibus, qui infra septa terre olim spectantes ad dictam abbatiam de Kyllenny habitabunt, in proprios usus habebunt in perpetuum.

Ceterum unionem dicte abbatie de Kyllenny cum omnibus grangiis suis terris et omnibus aliis pertinentiis et cum omni iure suo per capitulum generale Cisterciense factam cum abbatia de Valle Sancti Saluatoris approbamus et auctoritate pontificali et ecclesie nostre in perpetuum confirmamus, renuntiantes omni actioni que nobis quacumque ratione seu quocunque tempore competere posset contra abbatem et conuentum de Valle Sancti Saluatoris occasione prefate unionis.

In cuius rei robur et testimonium presens instrumentum confecimus et sigilla nostra apposuimus.

Hiis testibus, S. et S. de Bildewas et de Stanleg, abbatibus, Domino W., archidiacono Lechelinensi, R. Thesaurario Lechlinensi, Magistro Johanne de

Tantona, Domino Ranulpho rectore ecclesie de Balygauran, Domino Ricardo tunc officiali Lechlinensi, W. de Bendeuille milite, et multis aliis.

Datum apud Fynower viii Idus Junii anno gratie MCCXXVIII.

Two copies of this charter are extant, and also an early transcript (see p. 49, above). Three seals were attached to each of the former, but of the whole six only one remains.

The manor of Fynnore (Killenora), where this was executed, was near Kellistown in co. Carlow and in the diocese of Leighlin. It is to be observed that the abbey of Killenny was situate in that diocese, which accounts for the bishop of Leighlin's position in the case.

Of the various personages concerned in it, *Robert Fleming* was bishop of Leighlin from 1217 to 1228; *William* was archdeacon from 1200 to 1228, when he succeeded Robert Fleming as bishop; *John of Taunton* was a well-known canon of St. Patrick's (see p. 50); *William Crassus* we have had already (see p. 16); for *Ralph, the rector of Gowran*, see p. 11; *R., treasurer of Leighlin*, and *Richard, official of Leighlin*, do not seem to appear elsewhere; *W. de Bendeville*, knight, may be a kinsman of the William de Wendeval who was dapifer of King John, and was given a messuage in Dublin.[1] For Ralph de Bendeville, who also may have been a kinsman, see p. 21.

The abbey of Buildwas, whose abbot *S.* appears in this charter, was a Cistercian house in Shropshire. *Stephen*, the abbot of Stanley in Wiltshire, had been appointed Visitor-General of the Cistercians in Ireland, as we know from Charter 27.

29.

Inspeximus by Henry, archbishop of Dublin, of the preceding Charter (no. 28).

Dated at Dublin, 1 July, 1228.

Uniuersis Christi fidelibus ad quos presens scriptum peruenerit H. dei gratia archiepiscopus Dublinensis salutem in Domino.

Compositionem inter uenerabilem fratrem R. Lechelinensem episcopum necnon et W. archidiaconum eiusdemque ecclesie capitulum ex una parte, et abbatem et conuentum de Valle Sancti Salvatoris ex altera, super querelis subscriptis amicabiliter initam inspeximus sub hac forma: Omnibus Sancte Matris [*as in no. 28 verbatim, down to*] testibus et cetera. Nos igitur quorum interest pro officii debito paci et tranquillitati ecclesiarum prouidere et litium occasiones prescindere, que fraternam non numquam offendunt et minuunt caritatem, dictam compositionem ratam habentes, approbamus et auctoritate metropolitana in perpetuum confirmamus.

In cuius rei robur inconcussum et testimonium presens scriptum sigilli nostri appositione muniuimus.

Testibus domino S. abbate de Stanleg, W. decano Sancti Patricii Dublinensis, G. archidiacono Dublinensi, T. cancellario, R. thesaurario, et aliis.

[1] R.T.A. 417.

Datum apud Dublin anno gratie MCCXXVIII Kl. Julii per manum Warini canonici Sancti Patricii.

A small piece of the archbishop's seal remains; this charter must have been one of the last instruments executed by him.

Geoffrey de Turville, archdeacon of Dublin, who was one of the witnesses, was a man of importance. In 1237 he was Lord Chancellor of Ireland, and in 1244 became bishop of Ossory. For the other witnesses who were members of the Chapter of St. Patrick's Cathedral, see p. 50.

30.

Confirmation by Stephen, abbot of Stanley, in virtue of his commission (no. 27), of the union of Killenny with the convent of Duiske, as to which there had been complaint by certain persons from Fountains and Jerpoint. Certified by the abbots of Margam and Buildwas and thirteen abbots of Irish Cistercian houses.

Dated at St. Mary's Abbey, Dublin, 1228.

Universis Christi fidelibus ad quos presens scriptum peruenerit Frater Stephanus dictus abbas de Stanleia salutem in domino.

Cum capitulum generale Cisterciense ad partes Hibernie nos destinare decreuerit in plenitudine potestatis ordinis ibidem reformationem, merito nos solari congaudet solatiosque diligentia prouidere ut que ipsius auctoritate statuuntur teneant illibata et prouide nulla in posterum, nam ut cetera transeamus, nobis potestatem plenariam contulit absque alicuius obstaculo contradictionis plures abbatias ordinis, necessitatis prioribus abbatibus in unum conjungendi, alias de abbatiis eiusdem ordinis perpetuo in filias dandi, et quod possimus ordinem et constitutiones interdicto suique onere suspendere et excommunicationi in superbos et rebelles et ingeresecunt ordinem expedire. Abbatia siquidem de Vallis Dei [illegible] temporalis [illegible] ut nec ordinis disciplinam seruare nec hospitalitatem sectari sufficeret, cum [illegible] grangiis terris et aliis rebus suis insuper cum omni iure suo integre unita est, auctoritate capituli memorati, ut sic de cetero tam monachi ipsius quam conuersi sub iugo degant regulari et norma discipline, qui prius in animarum [illegible] quam [illegible] auctoritate tanta firmiter [illegible] Domini Cisterciensis quam quatuor [illegible] quidam submurmurant, utpote quidam de Fontanis et de Jeriponte, quasi futuris temporibus opus tam auctenticum possent irritare, propter quod simplicium et iuris ignarorum turbant conscientias et trahunt in errorem.

Nos igitur quorum interest in hac parte, quam sit amica contemplationi [illegible]

posterum et precludatur occasio maligno, presertim cum in confirmationibus quas Fontanenses habent a capitulo generali abbatia quondam Vallis Dei que in grangiam reddita est abbatie de Sancto Saluatore excipiatur, de uirorum auctenticorum summeque peritorum maxime autem subscriptorum abbatum consilio unanimi et consensu, dictam unionem Vallis Dei cum abbatia de Valle Sancti Saluatoris tam in bonis suis mobilibus quam immobilibus firmiter approbamus et auctoritate, supradicta nobis in potestate plenaria tradita in perpetuum, confirmamus. Insuper uniuersis tam abbatibus quam monachis et conuersis quacumque fuerint perpetuum imponimus silentium, ne sibi contra prefatam ordinationem aliquatenus reclamare uel ipsam quomodolibet audeant perturbare, decernentes irritum et inane quicquid in contrarium aliquo tempore impetratum uel quomodocumque fuerit attemptatum.

In huius siquidem rei robur et consensus ac confirmationis in perpetuum testimonium subscripti abbates una nobiscum sigilla sua apposuerunt; uidelicet, J. de Margan, S. de Bildewas, A. de Sancta Maria iuxta Dublin:, W. de Magio, M. de Valle Salutis, Philippus de Jeriponte, R. de Sancta Cruce, H. de Beatitudine, R. de Portu Beate Marie, . . . de Rosaualle, W. de Wetheni, W. de Voto, J. de Tracton, R. de Grenardo . . . de Aruicampo.

Datum apud Sanctam Mariam iuxta Dublin: anno gratie MCCXXVIII.

All the fifteen abbatical seals, formerly attached, have disappeared from this charter.

The union of Killenny with Duiske was long resented by the abbey of Jerpoint, of which Killenny had been a daughter house, and we shall meet with the dispute again (nos. 85, 86). Complaints seem to have been made, after the union had been formally ratified (see nos. 19–22), by monks of Fountains Abbey, Yorkshire, as well as by those of Jerpoint, which had been affiliated to Fountains by an Act of the General Congregation of the Cistercians in 1227.[1]

For *Stephen, abbot of Stanley*, see p. 53.

Besides the abbots of *Margam*[2] (in Glamorganshire) and of *Buildwas* (in Shropshire), we have here the certificate of thirteen Irish Cistercian abbots, viz.:—

A., abbot of St. Mary's, Dublin.

W., abbot of Nenay, situated about 7 miles west of Limerick, and called 'de Magio' because of its proximity to the river Maigue. Nenay is not to be confounded with Nenagh in co. Tipperary.

M., abbot of Baltinglass (de Valle Salutis), co. Wicklow.

Philip, abbot of Jerpoint, co. Kilkenny.

R., abbot of Holy Cross, near Thurles, co. Tipperary.

H., abbot of Bective (de Beatitudine), co. Meath.

R., abbot of Dunbrody (de Portu Beatae Mariae), co. Wexford.

The *abbot of Monasterevan* (de Rosea Valle), co. Kildare.

W., abbot of Wetheney or Abingdon in co. Limerick.

W., abbot of Tintern (de Voto), co. Wexford.

J., abbot of Tracton (de Albo Tractu), co. Cork.

R., abbot of Abbeylarha (de Grenardo), co. Longford; and

The *abbot of Kilcooley* (de Arvicampo), co. Tipperary.

[1] See Martene s. a. 1227.

[2] His name was *John de Goldclive*; see W. de Gray Birch, *Margam Abbey*, p. 221.

31.

Confirmation by Peter, bishop of Ossory, with his chapter, to the convent of Duiske, of the churches and chapels of Tulachany, Tikerlevan, Annamuit, and Grange Castri, after the decease or cession of Master P. of Christ Church, notwithstanding the presentation made to him.

Dated at Kilkenny, 7 Sept., 1228.

Uniuersis Sancte Matris Ecclesie filiis ad quos presens scriptum peruenerit P. dei gratia Ossoriensis episcopus salutem in domino.

Quoniam que intuitu dei et fauore religionis de assensu capituli nostri deo et abbatie de Sancto Saluatore et monachis ibidem deo seruientibus indulsimus et concessimus rationabiliter nolumus irritari: De assensu dicti capituli nostri cathedralis confirmamus et auctoritate pontificali confirmamus, quatinus non obstante presentatione facta Magistro P. de Christi ecclesia, libere liceat et absque omni [illegible] dictis monachis, post decessum uel cessionem memorati magistri P. tam ecclesiarum quam capellarum de Thalachenni, Tuamkarlewan, Archetenell et Grangia Castri possessionem, ingredi et in perpetuum [illegible] cum omnibus pertinentiis suis, sicud in autentico instrumento tam sigillo nostro quam capituli nostri cathedralis anno gratie M°. CC°. XXVIII°. septimo roborato continetur. Hec in aliquo, per predictam presentationem memorati Magistri P. uel institutionem per nos factam, scripto nostro uobis et capitulo uestro prius ostentorum uigor minuatur uel adnichiletur.

In cuius rei robur inconcussum et perpetuum testimonium confirmationis capitulum cathedralis ecclesie nostre una nobiscum presenti scripto sigillum suum apposuit.

Testibus Domino Stephano abbate de Stanlegh in Wilteschyris, Domino Philippo abbate de Jeriponte, Odone decano de Kylkenny, Almarico archideacono Ossoriensi, Ricardo de Grunstede, Galfrido Wiberth, Willelmo de Gudeford, canonicis ecclesie de Kylkenny, Magistro Florencio, Fratre Willelmo monacho de Sancto Saluatore, et multis aliis.

Datum anno gratie M.C.C.XXVIII septimo Idus Septembris aput Kylkenny.

This is supplementary to, and confirmatory of, Charter no. 24. The bishop's seal is gone, but the chapter seal remains. We do not know anything further of 'Master P. of Christ's Church,' who was entitled to the next presentation.

We have had before *Peter Mauclerc*, bishop of Ossory (p. 34); *Stephen, abbot of Stanley* (p. 33); *Philip, abbot of Jerpoint* (p. 57); *Odo, dean of Ossory* (p. 27); and *Almaric, archdeacon of Ossory* (p. 27).

Richard de Grunstede, *Galfrid Wiberth*, and *William de Gudeford*, canons of Ossory, appear again as witnessing a deed in the Register of St. Thomas' Abbey.[1]

We do not know anything of *Master Florence* or of *Brother William*, a monk of Duiske Abbey.

[1] R.T.A. 314.

32.

Inspeximus by William, bishop of Leighlin, of the Letters from the abbots of Citeaux, la Ferté, Pontigny, Clairvaux, and Morimund, confirming the union of Killenny with Duiske (no. 21).

W. dei gratia Leglinensis episcopus uniuersis presentes literas inspecturis uel audituris salutem in domino sempiternam.

Discretioni uestre duximus declarare nos literas uenerabilium patrum . . de Cistercio . . de Firmitate . . de Pontiniaco . . de Clareualle et . . de Morimundo abbatum inspexisse et manibus nostris contrectasse sub hac forma compositas: Fratres G. Cistercii [*as in no. 21, verbatim to*] anno gratie MCCXXVII apud Cistercium.

Ut igitur fides certissima super nos adhibeatur presenti scripto sigillum nostrum apposuimus.

The bishop's seal has disappeared from this charter.

The abbey of Killenny was in Leighlin diocese, and therefore confirmation of the union by the bishop of that see was necessary.[1]

William le Chauniuor, bishop of Leighlin, and formerly archdeacon, succeeded to the see on Robert Fleming's death, which (see no. 28) must have been subsequent to 6 June, 1228. William was elected bishop by the Dean and Chapter, without waiting for the royal licence, and this caused considerable delay in his consecration. The present charter cannot, therefore, be earlier than the end of 1228 or the beginning of 1229.

33.

Inspeximus and Confirmation by William, bishop of Leighlin, with the consent of his chapter, of the Confirmation by R., bishop of Leighlin, of the union of Killenny with Duiske.

Omnibus Christi fidelibus ad quos presens scriptum peruenerit W. dei gratia Lechlinensis episcopus salutem et benedictionem.

Licet omnibus quibus deus preesse nos uoluit teneamur prodesse, maxime cum illis nos conuenit paterne dilectionis curam sollicitius impendere, quos prepollere nouimus artiores uite et religionis decore. Inde est quod nos diuini amoris intuitu et sacrosancte religionis obtentu per assensum capituli ecclesie nostre cathedralis, inspecta carta uenerabilis in Christo patris et predecessoris nostri R. bone memorie Lechlinensis episcopi, unionem Vallis Dei quondam abbatie cum omnibus grangiis suis et terris et omnibus aliis pertinenciis et cum omni iure suo, per uisitatores capituli generalis Cisterciensis in plenaria potestate ad sacre prouentum religionis prouide factam, et per capitulum generale Cisterciense approbatam et consummatam cum abbatia de Valle Sancti Saluatoris, approbamus et auctoritate pontificali et

[1] See p. 55, above.

ecclesie nostre cathedralis abbati et monachis Sancti Saluatoris ordinis Cisterciensis in perpetuum confirmamus, prout in autentico memorati episcopi predecessoris nostri uerbo ad uerbum plenius continetur.

In cuius rei robur inconcussum et perpetuum testimonium confirmationis capitulum cathedralis ecclesie nostre una nobiscum presenti scripto sigillum suum apposuit.

Teste capitulo nostro, et Domino A. priore de Instioch, Magistro H. rectore ecclesie de Catherlach, Willelmo le Poer clerico, et aliis.

The two seals remain attached to this charter (see Plate II.). The chapter seal represents Leighlin Cathedral. The bishop's seal has both an obverse and a reverse. The obverse shows the bishop in canonicals, with pastoral staff, giving his blessing, and the legend is:

✠ WILLS DEI GRACI(A LEGHLI)NENS(IS E)PISCOPV'.

The reverse shows the crowned Virgin and Child, with the bishop kneeling beneath. The legend is a rough hexameter verse:

✠ SIS ROGO FILI (TE WILLE)LMO DVX VIA VITE,

a prayer on behalf of the bishop which is put in the Virgin's mouth. Mr. E. C. R. Armstrong has pointed out to me that a counter-seal of William of Cornhill, bishop of Lichfield (1215–1223), has a similar device and inscription.[1]

The original Confirmation of the union of the two convents, by *Robert Fleming*, bishop of Leighlin, does not seem to be extant; but this Inspeximus must be practically of the same date as no. 32, viz., at the end of 1228 or the beginning of 1229.

L. de Rames, prior of Inistioge, who is a witness, see p. 37. *H.*, *rector of Carlow*, is not otherwise known. *Willelmo le Poer, clerico*, attested many charters of this period.[2]

34.

Inspeximus by L. Archbishop of Dublin, of the Letters from G., abbot of Citeaux, and the General Chapter of the order (no. 22), confirming the union of Killenny with Duiske: at the request of the convent of Duiske for their greater security.

Dated at Kilkenny, 13 May, 1229.

Omnibus Christi fidelibus presentes literas inspecturis L. dei gratia Dublinensis archiepiscopus salutem eternam in domino.

Uniuersitati uestre notum facimus nos literas uenerabilis uiri G. abbatis Cisterciensis [illegible] capituli generalis sub hac forma inspexisse: Venerabilibus et in Christo dilectis abbati et conuentui Sancti Saluatoris [illegible] Datum anno gratie MCCXXVII tempore capituli generalis.

[1] See Brit. Mus. Cat. of Seals, i, p. 243, no. 1639.

[2] See R.T.A. 82, 128, 347; C.M.A. i, 114, 116; ii, 193.

Nos igitur ad petitionem uenerabilium abbatis et conuentus de Sancto Saluatore, et maiorem rei securitatem ne super dicto negotio ab aliquo possit debitare, presentes literas nostro sigillo munitas dictis abbati et conuentui Sancti Saluatoris concessimus testimoniales.

Datum apud Kilkenny tertiodecim die May, pontificatus nostri anno primo.

Archbishop Luke's seal has disappeared. He succeeded to the see of Dublin at the end of the year 1228. See p. 72.

For *Gautier*, abbot of Citeaux, see p. 45.

35.

Confirmation by Ralph, abbot of Clairvaux, with his convent, of the action of Stephen, abbot of Stanley, who was his deputy, in uniting the abbey of Killenny to that of Duiske.

Dated at Clairvaux, 4 December, 1229.

Omnibus Christi fidelibus ad quos presens scriptum peruenerit Frater R dictus abbas Clareuallis et eiusdem loci conuentus salutem in domino.

Quoniam uirum uenerabilem dominum S. coabbatem nostrum de Stanleg in Wyltesir ad partes Hybernie loco nostro ob ordinis in ibidem formationem, in plenetudine potestatis nobis a capitulo generali anno gratie MCCXX octauo commisse, destinare decreuimus, merito nos et zelari congruit summa diligentia prouidere, ut que statuuntur maneant illibata et preuaricandi audacia compescatur.

Nos igitur quorum interest in hac parte quam sit amica contemplatione pacis securitas et odiosa turbatio, attendentes ut omnis scrupulus tollatur in posterum et precludatur occasio malignorum, consilio unanimi et consensu ordinationes necnon et immutationes confirmationes . . . . . coabbatem nostrum dicto anno facta firmiter approbamus et auctoritate nostra confirmamus; insuper uniuersis tam abbatibus quam monachis et conuersis unumcumque fuerint inperpetuum imponimus silentium, ne sit contra prefatam ordinationem aliquatenus reclamare uel ipsam quomodolibet audeant perturbare, decernentes irritum et inane quicquid in contrarium aliquo tempore impetratum uel quomodocumque fuerit attemptatum.

In huius siquidem robur et perpetuum testimonium presenti scripto sigillum nostrum duximus apponendum.

(Datum) anno gratie MCCXX nono. In Clareualle die beati Sigirani abbatis.

The original of the above charter is not extant; but we have a transcript (see p. 49) of seven charters relating to the union of Killenny with Duiske, of which this is one. It is a Confirmation of no. 30, the abbot of Stanley having acted as the abbot of Clairvaux's deputy, as we know from no. 27.

It is dated 1229 'die beati Sigirani abbatis,' i.e. 4 December.

For *Ralph de Pinis*, abbot of Clairvaux, see *Gallia Christiana*, iv, 805.

36.

Grant by Adam de Sumeri for the good of his soul and of the soul of Clare, his wife, to the convent of Duiske, of the tithes of his lands at Denghen and Acherloski, with the obventions belonging to the chapel of these lands, after the death or cession of the possessor of the tithes, Thomas de Caunteton, rector of the church of Glennovere.

Uniuersis Sancte Matris Ecclesie filiis ad quos presens scriptum peruenerit Adam de Sumeri eternam in domino salutem.

Sciatis quod ego, pro salute anime mee et Clarec uxoris mee et liberorum nostrorum ac predecessorum et successorum nostrorum, dedi et concessi et hac presenti carta mea confirmaui abbati de Valle Sancti Saluatoris et monachis ibidem deo seruientibus omnes decimas terre mee que dicitur Denghen et . . . terius terre mee que dicitur Atherloski, cum omnibus obuentionibus ad capellam earundem terrarum pertinentibus, percipiendas in puram et perpetuam elemosinam iure perpetuo: postquam Thomas de Kantintune rector ecclesie de Glennouere, qui in presenti decimas possidet memoratas, de hac uita discesserit, uel uitam suam mutauerit.

Et ego et heredes mei warantizabimus abbati et conuentui domus memorate dictas decimas cum obuentionibus contra omnes homines et contra omnes feminas.

In huius donationis mee testimonium et munimen scripto presenti sigillum meum apposui.

Hiis testibus, Willelmo de Sumeri, Radulfo de Sumeri et Dauid de Sumeri fratribus meis, Roberto Dauid et Radulfo filiis meis, Willelmo de Kantintune filio Ade de Kantintune et Itheil fratre eius, Ricardo Bloet, et multis aliis.

The lands named in this instrument are the subject of later charters (nos. 50, 51, 52), from which it appears that they were in co. Cork in the diocese of Cloyne.

Denghen or *Denghen-eghnach* is probably to be identified with Ballindangan, which is near Glanworth and in the barony of Fermoy. Glanworth was anciently called *Glenore* (Glennovere = 'Gleann-iubhair,' the glen of the yew tree), and this name still remains as that of a prebend of Cloyne Cathedral.

Denghen means 'a fort' or 'stronghold,' and *Denghneachnach* may stand for 'the Fort of the Eoganachts,' i.e. the descendants of Eoghan Mor, a branch of the clan having settled near Glanore.

Acherloski (or Acheradloski = 'Achad loisethi,' a rich, fertile field) was also in the barony of Fermoy.

Adam de Sumeri's seal has disappeared from this grant, which may be dated about 1230. We have already had his family before us (p. 43), several of whom are named in this document, and also in no. 50.

Several members of the de Caunteton family also appear in our charters. Here we have *William de Caunteton*, who is probably the man we have had before (pp. 21, 35), and his brother *Itheil*, who were sons of Adam de Caunteton. *Thomas de Caunteton*, the rector of Glanore, may be identified with the person of

that name who was a clerk in the diocese of Cashel about 1219:[1] he appears again in nos. 42, 59.

A *Richard Bluet* signed one of Strongbow's charters (before 1176),[2] but the witness to this instrument can hardly be the same man.

37.

Petition from G., abbot of Citeaux, and the General Chapter of the Cistercian Order, to Pope Gregory IX, to confirm the union of the abbey of Killenny with the abbey of Duiske as directed by the abbot of Froidmont as Visitor (no. 19), on the general ground that a Cistercian house ought not to be maintained separately if it cannot support an abbot and twelve monks.

Dated 1230.

Beatissimo patri et domino G. dei gratia Summo Pontifici suus Frater G. dictus abbas Cistercii et totus conuentus abbatum capituli generalis se ipsos ad pedes, et tam deuotum quam debitum in omnibus famulatum.

Sanctitati uestre necessarium duximus reclamare quod ante hos annos, uisitatione facta per co-abbatem nostrum Frigidi Montis in abbatia Vallis Dei in Hybernia illuc in potestate plenaria ordinis nostri, per nos missum cum eam inueniret possessionibus et rebus ita extenuatam quod nec sibi sufficere posset nec transeuntibus hospitibus et pauperibus iuxta morem ordinis caritatis obsequia ministrare, idem uisitator ne diuina domus in se ipsa omnino marcesseret et pro defectu necessariorum rigor ordinis in ea penitus deperiret, ipsam in grangiam prouida discretione redegit et domui Sancti Saluatoris in Hybernia cum omnibus pertinentiis suis perpetuo iure concessit; laudabili nostri ordinis consuetudini et antiquorum patrum constitutioni inherendo qua utiliter dispensatur ne aliqua domus maneat abbatia que duodecim monachis et abbati cum honestate non possit sufficere.

Nos igitur factum tale sicut prouide factum est approbantes et assensu capituli generalis sigillo nostro confirmantes beatitudini uestre supplicamus attentius quatenus illud uestro dignemini confirmationis munere roborare et latorem presentium propter hoc ad pedes sanctitatis uestre directum in hiis et in aliis negotiis suis habere plenius commendatum, maxime cum metropolitanus insimul et diocesanus, una cum capitulo suo cathedrali, necnon et princeps terre ordinationi dicte assensum probuerint, et instrumentis puplicis et autenticis sigillis suis munitis duxerint confirmandum.

Bene et diu conseruet dominus sanctitatem uestram ecclesie sue sancte.

Datum anno gratie MCCXXX tempore capituli generalis.

The seal remains attached to this document, but all that can be read of the legend on it is ✠ SI . . . . . IS ✠

An early transcript of the Petition is also extant in an Inspeximus of Charters 55, 37, 39, 64, 65, which ends thus:

"Nos igitur predictorum patrum autenticis inspectis, presentem Hybernie

[1] R.T.A. 239. [2] C.M.A. ii. 154.

guerram diuersaque pericula de uariis causis emergentia pro oculis habentes, et tanto negotio debita discretione et diligentia pro posse nostro tute prouidere cupientes, dictis auctenticis tutissime reconditis, transcripta eorumdem de uerbo ad uerbum fidelium exonerata cum sigillorum nostrorum testimonio nobis recitanda ad majorem fidem faciendam ad instanciam predictorum patrum m . . . decreuimus."

The date of this Inspeximus is not given. See p. 52 for a similar form.

38.

Grant by John St. John, bishop of Ferns, with the consent of his chapter, to the convent of Duiske of all the land of Kilalchuy, with its appurtenances, for an annual rent of ten shillings, to be paid half-yearly, at Easter and Michaelmas.

Uniuersis Sancte Matris Ecclesie filiis ad quos presens scriptum peruenerit J. dei gratia Fernensis episcopus eternam in Domino salutem.

Ad uniuersitatis uestre noticiam uolumus peruenire nos diuine caritatis intuitu et sacrosancte religionis obtentu, de assensu et consensu canonicorum nostrorum et totius capituli nostri de Fernes, dedisse et concessisse et hac presenti carta nostra confirmasse Deo et Sancte Marie et monachis de Valle Sancti Saluatoris Cisterciensis ordinis totam terram de Kilalchuy cum omnibus suis pertinentiis et cum omnibus libertatibus et liberis consuetudinibus ad prefatam terram spectantibus; tenendam et habendam de nobis et successoribus nostris in perpetuum libere quiete integre et pacifice;

reddendo inde annuatim nobis et successoribus nostris decem solidos esterlingorum, uidelicet ad Pascha quinque solidos et ad festum Sancti Michaelis quinque solidos pro omni seruicio et exactione que nos uel successores nostros quocumque casu possint contingere.

Insuper eciam eisdem ecclesiam de Kilalchuy cum omnibus suis pertinentiis in puram et perpetuam elemosinam caritatiue concedimus et confirmamus.

Ut autem hec nostra donatio et confirmatio perpetuam forciantur firmitatem presenti scripto sigillum nostrum una cum sigillo capituli nostri cathedralis duximus apponendum.

His testibus, Reginaldo archidiacono Fernensi, Magistro Galfrido de Sancto Johanne tunc officiali Fernensi, Magistro Willelmo de Foresta tunc officiali Ossoriensi, Magistro Adam de Oxonia, Magistro Waltero de Wexeford, Domino Willelmo de Prendelgast, Radulfo de Sumeri, Dauid de Sumeri, Dauid de Hinteberge, et multis aliis.

A *précis* of this charter is given in the extracts from the Duiske papers which we have called L (fol. 32). The chapter seal attached to it is preserved; but of the bishop's seal only a small piece remains. There is another copy of a similar charter extant, sealed, but without the names of witnesses, in which the land in question is called *Kilchuach*, and is granted "cum omnibus decimis et obuentionibus ipsam contingentibus."

The place *Kilalchuy* or *Kilchomoch* or *Kildalagan* (as it is described in L) or *Killacy* (as Ware calls it) is among various places resigned to the bishop of Ferns and his chapter by an agreement with Gerald de Prendergast in the year 1230.[1] In that agreement it is called *Killalethan*, and it may safely be identified with the modern *Killalligan* in Monart parish, in the barony of Scarawalsh, co. Wexford. Several of the persons named in this agreement are concerned with the charter now before us, and the two instruments must be of the same date, i.e. the latter part of the year 1230.

John St. John, who was the first Anglo-Norman bishop of Ferns (1223–1253), became Treasurer of the Exchequer at Dublin in 1226. *Reginald de Dene* was archdeacon of Ferns between 1223 and 1230, in which latter year he died.[2] *William de Foresta* or *Forest* was first 'official' of Ferns, and afterwards 'official' of Ossory. (The duties of an 'official' were akin to those discharged by a Chancellor or Vicar-General.) In the former capacity he appears in a charter of Dunbrody Abbey about 1228,[3] and in the Agreement between the bishop and Gerald de Prendergast above mentioned. He attests without any designation of his office a Kells charter of about the year 1228, and two other charters of Gerald de Prendergast about 1230.[4] At the time when he attested our Charter 38, he was official of *Ossory* (not of Ferns, the official of Ferns being *Geoffrey St. John*, who afterwards became bishop of that see), and in this capacity he also attested a charter later than 1232,[5] and a charter made in the time of Luke, archbishop of Dublin (1228–1255).[6]

Adam of Oxford is probably the 'magister Adam' who attested another of bishop John St. John's charters about 1230.[7] *William de Prendergast* we have had before (p. 42); he was a witness to the agreement above mentioned between bishop John St. John and Gerald de Prendergast, his kinsman, as was also *Ralph de Sumeri*, for whom, as for his brother *David de Sumeri*, see p. 43.

Walter de Wexford was a witness to the grant made to the Dominicans at Kilkenny by bishop Geoffrey de Turville (1244–1250).[8]

For the family of *David de Hinteberg* see p. 17.

39.

Confirmation by Pope Gregory IX of the union of the abbey of Killenny with the abbey of Duiske.

Dated at the Lateran, 9 Jan., 1231.

Gregorius episcopus seruus seruorum dei dilectis filiis abbati et conuentui Sancti Saluatoris in Hibernia Cisterciensis ordinis salutem et apostolicam benedictionem.

Solet annuere sedes apostolica piis uotis et honestis petentium precibus fauorem beniuolum impertiri. Ex parte siquidem uestra fuit nobis humiliter supplicatum ut, cum . . abbas Frigidi Montis Cisterciensis ordinis totiusque

[1] See Hore's *Ferns*, p. 343.
[2] Addl. MSS. Brit. Mus. 4793, fo. 15, as quoted in Hore's *Ferns*, p. 347.
[3] C.M.A. ii, 172. [4] R.T.A. 186, 189. [5] R.T.A. 346.
[6] Hore's *Duncannon Fort*, p. 312. [7] R.T.A. 190. [8] Carrigan, i, 38.

eiusdem ordinis tunc in Hibernia uisitator domum de Valle Dei cum pertinentiis suis, uenerabilium fratrum nostrorum. . . . . Dublinensis archiepiscopi, . . Lechlinensis episcopi eius suffraganei diocesani, et nobilis uiri W. Marescalli Comitis Pembrochie domini loci accedente consensu, deliberatione prouida pro eo quod fratribus eiusdem ordinis degentibus tunc in ipsa in multorum scandalum dissolute uiuentibus paupertate nimia primebatur, grangiam esse statuerit, nobisque concesserit ut ipsam possitis tamquam grangiam perpetuo possidere, quod super hoc ab eodem abbate Frigidi Montis prouide factum est, dignaremur apostolico munimine corroborare :

Nos ergo uestris iustis precibus inclinati quod super hoc . . . . dicto abbate Frigidi Montis rite ac prouide . . . et in litteris confectis exinde dicitur plenius contineri, auctoritate apostolica confirmamus et presentis scripti pa(trocinio) communimus.

Nulli ergo omnino hominum liceat hanc paginam nostre confirmationis infringere uel ei ausu temerario contraire.

Si quis autem hoc attemptare presumpserit indignationem dei omnipotentis et beatorum Petri et Pauli apostolorum eius se nouerit incursurum.

Datum Laterani V Idus Januarii pontificatus nostri anno quarto.

We have not the original of this charter, but an early transcript is extant (see p. 63). Neither of this instrument, nor of no. 40, is there any note in the published *Calendar of Papal Letters*.

40.

Confirmation by Pope Gregory IX of the agreement between Peter, bishop of Ossory, with his chapter, and the convent of Duiske, as to the churches of Tulachany and Tikerlevan (no. 31), mediated by the abbot of Savigny, then abbot of Stanley, and the subprior of Stanley, now the abbot.

Dated at the Lateran, 20 Jan. 1231.

Gregorius episcopus seruus seruorum dei dilectis filiis abbate et conuentui Sancti Saluatoris in Hibernia Cisterciensis ordinis salutem et apostolicam benedictionem.

Ea que iudicio uel concordia terminantur firma debent et illibata persistere, et, ne in recidiue contentionis scrupulum labantur, apostolico conuenit presidio communiri.

Eapropter dilecti in domino filii uestris iustis postulationibus inclinati, compositionem que, inter uos ex parte una et uenerabilem fratrem nostrum episcopum et capitulum Ossoriense ex altera, super de Thulachannu et de Stannakhurlewan ecclesiis decimis possessionibus et rebus aliis, mediantibus . . . abbate de Salbiniaco tunc abbate de Stanleia uisitatore totius ordinis in Hibernia et . . . subpriore de Stanleia nunc abbate loci eiusdem, amicabiliter interuenit, sicut sine prauitate prouide facta est, et ab utraque parte spectate recepta et hactenus pacifice obseruata, auctoritate apostolica confirmamus et presentis scripti patrocinio communimus.

Nulli ergo omnino hominum liceat paginam nostre confirmationis infringere uel ei ausu temerario contraire. Siquis autem hoc attemptare presumpserit indignationem omnipotentis dei et beatorum Petri et Pauli apostolorum eius se nouerit incursurum.

Datum Laterani xiii Kalend Februarii pontificatus nostri anno. . . .

This was probably executed about the same time as no. 39. The possession of the churches of Tulachany and Tikerlevan was the subject of many negotiations between the diocesan and the conventual authorities (see Charters 8, 9, 10, 23, 24, 26, 31); and it would seem from the language of this instrument that agreement had finally been reached by the good offices of *Stephen, abbot of Stanley*, who came as Visitor-General of the Cistercian order in Ireland to inspect the Irish Cistercian houses.[1]

41.

Granted by Gerald de Prendergast, for the good of his soul, &c., to the convent of Duiske, of Rathboghal in Bantry, with three carucates of land in fee, which Roger Galgheil held from his father Philip de Prendergast (see no. 17) and Richard de Marisco granted to the convent (no. 16); and also of Rathsalach, with two carucates of land which they hold from the prior and monks of Glascarrig; these five carucates to be free from rent, except for half a mark which Philip de Hinteberg and his heirs ought to pay instead of the escheats of the two carucates of Rathsalach.

Uniuersis Sancte Matris Ecclesie filiis ad quos presens scriptum peruenerit Geraldus de Prendelgast in domino salutem.

Nouerit uniuersitas uestra me pro salute anime mee et animarum antecessorum meorum et successorum concessisse et hac presenti carta mea confirmasse Deo et abbatie Sancte Marie de Valle Sancti Saluatoris et monachis ibidem deo seruientibus Rathbachlach cum tribus carrucatis terre in feodo de Bentrie, illam scilicet quam Rogerus Galgheil tenuit de patre meo et Ricardus de Marisco eisdem monachis dedit et incartauit.

Insuper concessi et confirmaui predictis monachis memorati loci Rathsalach cum duabus carrucatis terre quas ipsi tenent de priore et monachis de Glascarrach, que terra sita est iuxta dictas tres carrucatas uersus aquilonem in dicto feodo de Bentrie.

Preterea dedi concessi et confirmaui memoratis monachis omnem redditum et omne seruicium quod ad me uel ad heredes meos de dictis quinque carrucatis terre pertinent uel pertinere poterunt in puram et perpetuam elemosinam, salua mihi et heredibus meis dimidia marca argenti quam Philippus de Inteberge et heredes sui annuatim mihi et heredibus meis soluere debent, pro ascheanciis† que accidere possent de dictis duabus carrucatis terre de Rathsalach; quam dimidiam marcam si predictus Philippus et heredes sui mihi et

[1] See p. 53 for Stephen de Lexinton.

heredibus meis non persoluerint, non tenebuntur monachi nec terre eorum nec homines sui inde respondere; scilicet ad me et ad heredes meos pertinebit dictum Philippum et heredes suos compellere ad illius dimidie marce solutionem, ita quod monachi erunt quieti ab omni uexatione et demanda.

Volo igitur ut predicti monachi habeant et teneant dictas quinque carrucatas terre plenarie et integre et quiete ab omni demanda omnimodo uexatione omni seruicio seculari et exactione, quantum ad me pertinet et ad heredes meos.

Et ut hec donatio mea concessio et confirmatio stabilis permancat inperpetuum et inconcussa, presens scriptum sigilli mei munimine roboraui.

Hiis testibus, Willelmo Crasso primogenito, W. Crasso juniore, Dauid de Sumeri, Ricardo de Marisco, Nicholao le Marchis, Roberto Huscard, Johanne Fossard, Galfrido Walensi, et multis aliis.

The seal is still attached to this charter.

Gerald de Prendergast, son of Philip de Prendergast (see p. 21), was married, *firstly* to Matilda, sister of Theobald Walter the Second (see p. 32), and *secondly* to a daughter of Richard de Burgh. He succeeded to the Duffrey estates near Enniscorthy in 1229, and took possession late in the year 1230. He died in 1251. This instrument is probably about the same date as no. 38, viz. 1230 or 1231.

The acquisition by the convent of land at *Rathboghal* has been before us in previous charters (nos. 16, 17); but *Ryeskeach* has not been mentioned by name previously. The two carucates at the latter place, however, were evidently the two carucates in Duiske, part of which the convent was put in possession in 1223 (see p. 35) by the prior and monks of Glascarrig.

Philip de Hinteberg is evidently the same person as the man of that name who was a witness to *Richard de Marisco's* grant of *Rathboghal* (no. 16). See p. 17 for the Hinteberg family. As was fitting, *Richard de Marisco* or Marsh witnessed the present charter, which was of the nature of a confirmation by his overlord of his original benefaction.

We have had before the brothers *William Crassus senior* and *William Crassus junior* (p. 16); *David de Sumeri* (p. 43); *Nicholas le Marchis* or Marsh (p. 37; see also Charter 41); and *Robert Huskard* (p. 42).

Of *Geoffrey the Welshman* (Walsh) and *John Fossard* we know nothing.

42.

Grant by Nicholas le Marchis, for the good of his soul, &c., to the convent of Duiske, of the fish-pond called Cordredan, with its liberties, &c., to hold free of rent for ever.

Sciant presentes et futuri quod ego Nicholaus le Marchis pro salute anime mee et uxoris mee et antecessorum et successorum meorum consensu et assensu heredum meorum dedi et concessi et hac mea presenti carta confirmaui Deo et Beate Marie de Vaile Sancti Saluatoris et monachis ibidem deo seruientibus in puram et perpetuam elemosinam piscariam que dicitur Chory O Dradan cum omnibus libertatibus ad ipsam pertinentibus; ita ut ipsam habeant et

teneant plenarie pacifice libere quiete, sicut ulla elemosina liberius et quiescius teneri potest.

Et ego et heredes mei hanc donationem monachis predicte domus contra omnes homines warantizabimus.

Hiis testibus, Philippo le Marchis, Roberto Uscard, Nicholao Coco, Mauricio Maccolletan, Dauid filio Lynon, et multis aliis.

'Coraidh' means a fishing-weir, and the fish-pond of Chory O Dradan, or Cordredan, which was apparently a pool of the river Barrow (it is described as 'in Odrone' in the endorsement on the back of the charter), is mentioned again in a later deed (no. 82).

The seal of *Nicholas le Marchis* or Marsh (see pp. 37, 68) has been lost. *Philip le Marchis* was evidently a relative. *Robert Huskard* has appeared before (pp. 42, 68).

A witness named *Nicholas Coc* or Cooke or Coke appears in a Leixlip charter[1] of Adam de Hereford (see p. 49); he may be the man mentioned here.

Of *David Fitz Lynon* and *Maurice MacColletan* we know nothing. The Codhletans or Colletans were an Anglo-Irish family who settled at Aglis, co. Carlow.

The date of this charter may be about 1232, but there is nothing to fix it exactly.

43.

Confirmation by W., bishop of Ossory, to the convent of Duiske of the church of Tulachany, one mark yearly to be paid to the cathedral church of Kilkenny, the synodical dues being reserved, and the convent to provide a chaplain to the church: also confirmation of the chapels of Annamult and Grange Castri as agreed by Hugh, bishop of Ossory.

Uniuersis presens scriptum uisuris uel audituris W. dei gratia Ossoriensis episcopus eternam in domino salutem.

Quoniam ea que perpetua gaudent firmitate ad perpetuam memoriam puplice debent commendari scripture, ad uniuersitatem uestram uolumus peruenire, nos diuini amoris intuitu et sacrosancte religionis obtentu concessisse et hoc presenti scripto nostro confirmasse deo et beate Marie et monachis de Valle Sancti Saluatoris Cisterciensis ordinis ibidem deo seruientibus ecclesiam de Thulachenny cum omnibus decimis et obuentionibus ipsam contingentibus, salua una marca argenti quam dicti monachi ecclesie cathedralis de Kylkenny annuatim tenentur persoluere ad duos anni terminos, uidelicet in Inuentione Sancti Crucis dimidiam marcam et in festo Sancti Cannici dimidiam marcam, pro omni consuetudine demanda et exactione, saluis tamen sinodalibus, et salua competenti sustentatione unius capellani qui eidem ecclesie deseruiet.

Per easdem concedimus insuper dictis monachis et confirmamus capellam

[1] C.M.A. i, 236.

de Athenemold et capellam de Grangia Castri cum omnibus decimis et obuentionibus ipsas contingentibus ut omnia predicta habeant et teneant de nobis et successoribus nostris in perpetuum libere et quiete honorifice et pacifice in usus proprias, saluis tamen sinodalibus nobis et successoribus nostris sicut continetur in autentico pie memorie Hugonis episcopi predecessoris nostri; in uirtute obedience iniungentes et sub pena anathematis prohibentes ne archidiaconus uel aliquis alius a predictis monachis uel eorum capellanis ibidem seruientibus ratione procurationis in preiudicium huius nostre confirmationis aliquid attemptare presumat.

Et ut hec nostra confirmatio et concessio rata permaneat et inconcussa presenti scripto sigillum nostrum duximus apponendum.

Hiis testibus uiris uenerabilibus, M. de Kenles, et A. de Instioch, tunc prioribus, Magistro Henrico de Pembroch, Thoma rectore ecclesie de Kallan, et aliis.

This charter is an episcopal confirmation of previous grants (see nos. 7, 9, 10, 24, 26, 31).

The endorsement (not contemporary) on the back of the charter gives the bishop's name as William, but this is a mistake. William of Kilkenny was, indeed, elected bishop of Ossory after the death of Peter Malveisin, but he refused the office and was not consecrated until 1255, when he became bishop of Ely (see p. 81). The bishop who granted the charter before us was *Walter de Brackley*, who succeeded to the see of Ossory in 1232. It is probable that the instrument was executed shortly after his accession, so that it may be placed at the end of 1232 or the beginning of 1233.

Of the witnesses we have already had *Alured, prior of Inistioge* (p. 37), and *Thomas, rector of Callan* (p. 31). The Christian name of *M., prior of Kells*, may have been *Martin*, as that name appears among the priors about this period in Ware's Abstract of the Charters of Kells. *Henry of Pembroke* was dean of Ossory at a later date.[2]

44.

Confirmation by W., bishop of Ossory, to the convent of Duiske of the vill of Tikerlevan; the convent to maintain a chaplain there, and to pay an annual rent of twenty shillings to the cathedral church of St. Canice, Kilkenny, the episcopal dues being reserved.

Uniuersis Christi fidelibus presens scriptum uisuris uel audituris W. miseratione diuina Ossoriensis episcopus eternam in domino salutem.

Ad uniuersitatis uestre noticiam uolumus peruenire nos diuine caritatis intuitu et sacrosancte religionis obtentu concessisse et hoc presenti scripto nostro confirmasse Deo et Beate Marie Virgini et monachis de Valle Sancti Saluatoris Cisterciensis ordinis eiusdem Dei seruientibus uillam de Stacmakerlewan cum omnibus suis pertinentiis, tenendam et habendam de nobis et

[1] Carrigan, iv, 61. [2] Carrigan, i, 38.

successoribus nostris inperpetuum integre plenarie et pacifice, cum natiuis et omnibus aliis libertatibus et liberis consuetudinibus ad dictam uillam pertinentibus;

reddendo inde annuatim cathedrali ecclesie de Kilkenny uiginti solidos sterlingorum ad duos anni terminos, uidelicet in Inuentione Sancte Crucis decem solidos et in festo Sancti Kanici decem solidos, pro omni seruicio seculari et exactione.

Insuper concedimus et confirmamus dictis monachis ecclesiam eiusdem uille cum omnibus decimis et obuentionibus ipsam contingentibus tenenda et habenda de nobis et successoribus nostris inperpetuum in usus proprios, sicut continetur in autenticis predecessorum nostrorum libere quiete integre et pacifice, saluis tamen sinodalibus nobis et successoribus nostris et salua competenti sustentatione unius capellani qui eidem ecclesie deseruiet per eosdem.

Nos igitur in uirtute obedientie firmiter iniungentes sub pena anethematis prohibemus, ne archidiaconus uel aliquis alius a dictis monachis uel eorum capellanis ibidem celebrantibus in preiudicium huius nostre confirmationis ratione procurationis alicquid attemptare presumat.

Et ut hec nostra concessio et confirmatio in posterum rata permaneat et inconcussa presenti scripto sigillum nostrum duximus apponendum.

Hiis testibus uiris uenerabilibus, M. de Kenlis, A. de Instioch, tunc prioribus, Magistro Henrico de Pembroch, Domino Thoma rectore ecclesie de Kallan, et aliis.

This charter was probably executed on the same day as no. 43 (the witnesses being the same), i.e. at the end of 1232 or the beginning of 1233. The original grant of the vill of Tikerlevan is recorded in Charter no. 8.

45.

Confirmation by Luke, archbishop of Dublin, to the convent of Duiske of Charters no. 26 and no. 28, *supra*.

Dated at Kilkenny, 25 Feb. 1233.

Uniuersis Christi fidelibus ad quos presens scriptum peruenerit, Lucas dei gratia Dublin: ecclesie minister humilis eternam in domino salutem.

Ad sacre religionis institutionem et incrementum sicut ex officii debito nobis incumbit propensius invigilare, ita ut instituta fructificent tenemur studiosius procurare, et precipue uiros religiosos pia et paterna affectione protegere et confouere, diuine igitur remunerationis intuitu et exemplo pie recordationis domini H. quondam Dublinensis archiepiscopi predecessoris nostri prouocati, quasdam terras et quedam beneficia que bone memorie P. Ossoriensis episcopus dilectis in Christo filiis abbati et monachis de Sancto Saluatore Cisterciensis ordinis pietatis intuitu concessit et confirmauit, eadem beneficia et terras predictas auctoritate metropolitica prout in carta memorati episcopi et ipsius cyrographo continentur una cum ceteris beneficiis

que eisdem pia fidelium largitione collata fuerint aut in posterum iuste conferentur concedimus et confirmamus.

Que propriis duximus exprimenda uocabulis: "Videlicet ecclesiam de Thilachanni cum omnibus pertinentiis suis et cum decimis grangie quam ibi habent, salua una marca quam soluent ecclesie cathedrali de Kilkenny, &c. [*as in no. 26, down to*] concedimus et confirmamus."

Compositionem etiam inter bone memorie R. quondam Leclinensem episcopum nostrum et W. tunc archidiaconum nunc uero episcopum eiusdemque ecclesie capitulum ex una parte et abbatem et conuentum de Valle Sancti Saluatoris prefatos ex altera super querellis subscriptis ratam habemus et confirmamus sub hac forma "Omnibus Sancte Matris Ecclesie . . [*as in no. 28, down to*] His testibus, &c." Nos igitur quorum interest pro officii debito paci et tranquillitati ecclesiarum prouidere et litium occasiones prescindere que fraternam non tam depiam offendunt et minuunt caritatem dictam compositionem ratam habentes approbamus et auctoritate metropolitana in perpetuum confirmamus.

In cuius rei robur memoriam et testimonium presens scriptum sigilli nostri appositione muniuimus.

Datum quinto Kalend: Marcii pontificatus nostri anno quinto apud Kylkenny.

Only half remains of the seal of Luke, archbishop of Dublin. His election to the see was confirmed by the King on 13 December, 1228; but, as there had been some irregularity, it was not confirmed by the Pope until 1229. He was consecrated 30 April, 1230. Thus, it is not possible to be certain as to the date from which the "years of his pontificate" begin; but here, and in no. 34, *supra*, we have reckoned them to run from 1228, the year of election. If the starting-point should be 1230, the year of consecration, nos. 34 and 45 should be dated 1231 and 1235 respectively.

46.

Quit Claim by Sir Robert de Cardiff for the good of his soul, &c., after a controversy between himself and the convent of Duiske, as to a ditch which is on his land.

Uniuersis Christi fidelibus presentes literas inspecturis uel audituris Robertus de Cardif miles eternam in domino salutem.

Nouerit uniuersitas uestra quod super quarum controuersia inter me ex una parte et [illegible] Sancti Saluatoris ex alia mota fuit, uidelicet de quodam fossato quod fecit [illegible] in terra mea [illegible] ita conuenit inter nos quod ego pro anima mea et uxoris mee et antecessorum et successorum nostrorum omnem clamationem quam habui [illegible] quietam clamaui et totam terram infra fossatum predictum [illegible] fossato illo presenti carta eisdem monachis in perpetuum confirmaui.

Hiis testibus, Reginaldo de Kerneth, tunc vicecomite de Kilkenny, Rogero Russel, Ris Beketh, Robino de Carreu, Alfredo Blundo, et multis aliis.

Robert de Cardiff's seal has disappeared. We have met with him already in a dated charter of 1227 (see p. 47), and this quit-claim may provisionally be assigned to the year 1233 or thereabout.

For *Reginald de Kernet* see pp. 35, 40; and for *Roger Russell* see p. 40.

There were at least two people named *Ris Beket*, who are concerned in these charters, and they were probably father and son. The elder, who appears here, must be of kin to the 'Resus Bechet' who witnessed a grant of land in Idrone to Mary's Abbey in 1202;[1] and we take him as identical with the man who witnessed no. 59 about 1255, and no. 60 in 1256. Then we meet with 'Ris Beket junior' in 1278 (Charters 71, 72), the signature indicating that the elder man was still alive. In the later charters 77, 80, 81, 'Ris Beket' is named without any note of juniority, so that Ris Beket the elder had probably died previously to their execution.[2]

The presence of *Robin de Carew* as a witness recalls the fact that it was a Carew deed which the earliest of the Ris Bekets witnessed in 1202.

Alfred Blund appears again in the next Charter (47).

47.

47. Grant by Robert de Cardiff, for the good of his soul, &c., to the convent of Duiske of three acres of meadow near Seskin, free of rent.

Sciatis presentes et futuri quod ego Robertus de Kaerdif dedi et concessi et hac presenti carta mea confirmaui Deo et beate Marie matri eius et conuentui de Valle Sancti Saluatoris tres acras prati que iacent proximo iuxta Seskin pro salute anime mee et Tes . . ce uxoris mee ac liberorum nostrorum, habendas perpetuo et tenendas in puram et perpetuam elemosinam liberas et quietas ab omni seruitio et exactione que uel ad me uel ad heredes meas pertineat.

Et ego et̃ heredes mei warantizabimus tres predictas acras prati memorati conuentui de Valle Sancti Saluatoris contra omnes homines et contra omnes feminas.

In huius donationis mee testimonium presenti scripto meum apposui sigillum.

Hiis testibus, Rogero Russel, Waltero filio meo, Willelmo Chapun, Alueredo Blundo, ... de Kiltan, Roberto Blundo de Kilbledhi, Johanne filio . . . . . ., et multis aliis.

Robert de Cardiff has appeared before (see pp. 40, 72), and we learn from this charter and from no. 60 that he had two sons, *Walter* and Richard, his wife's name being almost obliterated in the deed before us. *Seskin* is still the name of a

[1] C.M.A. i, 113.

[2] A Ris Beket appears in 1307 as holding lands in co. Cork (*Cal. of Irish Justiciary Rolls*, ii, 367-9).

townland in the parish of St. Mullins, in the electoral division of Ballymurphy, co. Carlow, not far from Ballybeg, or Ballybegan, the name given to Richard de Cardiff's holding in Charter 60, in which this grant by *Robert de Cardiff* is mentioned.

Roger Russell and *Alfred Blund* were witnesses to Charter 46, as well as to this. These Blunds evidently were neighbours, and are to be distinguished from the Blunds of Callan (see no. 88). A Robert le Blound held lands in the neighbourhood of New Ross, from Roger Bigod, earl of Norfolk, at the beginning of the fourteenth century,[1] and he was probably of the same family. The *Robert Blund* who appears here is described as of Kilbleddi (Cell Bléidini), but we have not succeeded in identifying the place.

Another witness, whose name is illegible, is described as 'de Kiltan.'

The deed may, provisionally, be assigned to the year 1233 or thereabouts.

48.

Grant by William de St. Leger, for the good of his soul and of the soul of Isabel, his wife, to the convent of Duiske of the river dividing his land of Tullaghanbrogue from the convent land at Tulachany, with all other rivers in his holding at Tullaghanbrogue, that the monks may erect a mill; twenty crannocks of corn to be ground for his house every year free of toll.

Sciant presentes et futuri quod ego Willelmus de Sancto Leodegario pro salute anime mee et Ysabele uxoris mee et pro salute parentum meorum atque omnium antecessorum ac successorum meorum dedi et concessi et hac presenti carta mea confirmaui abbati et monachis de Valle Sancti Saluatoris ordinis Cisterciensis totum riuulum qui facit diuisas inter terram meam de Thulachanbroc et terram dictorum monachorum de Thulachenny cum omnibus aliis riuulis totius tenementi mei de Thulachbroc, quoscumque poterunt deducere qualicumque arte sine detrimento pratorum meorum ad construendum molendinum ubi uiderunt sibi et suis successoribus expedire loco competenti, habendum de me et heredibus meis sibi et successoribus suis in liberam puram et perpetuam elemosinam in perpetuum.

Dicti uero abbas et monachi de Valle Sancti Saluatoris concesserunt et quietum clamauerunt mihi et heredibus meis pro se et successoribus suis, molituram uiginti cranocorum de domo mea propria et heredum meorum singulis annis a theloneo immunem.

Ut autem hec mea donatio concessio et confirmatio rata et stabilis in posterum permaneat presentem cartam sigilli mei munimine coraboraui.

Hiis testibus, Willelmo filio Mauricii, Reso de Arderne, Willelmo Baratin, militibus, Rogero de Pembrok tunc uicecomite de Kilkenny, Galfrido Scortals, Gileberto Tonere, Waltero de Mora, et multis aliis.

The date of this charter cannot be fixed precisely, but from the names of the witnesses it was probably executed about 1235.

[1] Hore's *New Ross*, p. 171.

We have met with *William de St. Leger* before (p. 21). The river which is the subject of the grant is now called the King's River. For *Tullaghanbrogue* see p. 21; for *Tulachany*, p. 20; and for *William Fitz Maurice*, the first witness, p. 39.

Ris de Arderne witnessed a charter of Dunbrody Abbey, granted by Walter Marshal between 1241 and 1245;[1] and he appears in 1246 as holding Marshal lands.[2] *William Baratin*, who is described as a knight (as well as Ris de Arderne), *Geoffrey Scortals*,[3] and *Gilbert Thunder* were all witnesses of John Fitz Geoffrey's Charter to Kells,[4] which was executed after 1234.

Roger de Pembroke appears as witness to several charters, e.g. William Fitz Geoffrey's charter to Kells about 1215;[5] and the charter granted by Walter Marshal to Dunbrody between 1241 and 1245,[6] already mentioned as signed by Ris de Arderne. He held Marshal lands in 1246.[7] He is here described as *vicecomes*, i.e. sheriff, of Kilkenny. See no. 59, *infra*.

Of *Walter de Mora* (or, perhaps, *de Mera*; see no. 77) we know nothing. A person of the same name appears as holding lands in co. Wexford in 1281.[8]

49.

Letters of W., bishop of Leighlin, certifying that Laurence of London, precentor, had renounced his title to the Church of Dunmatatheg in Idrone, to which he had formerly been presented by the convent of Duiske.

Dated at Lechdufthy Feb., 1236.

Uniuersis presentes literas inspecturis uel audituris W. dei gratia Lechlinensis episcopus eternam in domino salutem.

Noueritis quod cum aliquando abbas et conuentus de Valle Sancti Saluatoris ad ecclesiam de Dunmatatheg in Odrone cum suis pertinentiis magistrum Laurentium de London precentorem nostrum nobis presentassent, processu temporis idem L. mutando consilium omni iure quod habuit pretextu dicte presentationis in nostra presencia constitutus sponte et mere renunciauit, et literas suas renunciationis coram nobis in capitulo nostro apud Lechdufthy ad instanciam dictorum abbatis et conuentus legi fecimus.

In cuius rei testimonium presenti scripto sigillum nostrum apponi fecimus.

Actum apud Lechdufthy anno gratie MCCXXXV mense Februario.

We have had the church of *Dunmatatheg* or *Duntnactathec* before (p. 36).

The bishop was *William le Chauniuor*, who held the see of Leighlin from 1228 to 1251.

Of *Laurence of London*, the precentor, we know nothing more.

Of *Lechdufthy* we have not identified the situation.

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[1] C.M.A. ii, 164. [2] C.M.A. ii, 406.

[3] Shortalstown Chapel appears in the Red Book of Ossory as in the Deanery of Kells, co. Kilkenny; for the Shortall family, see Graves, *History, &c., of St. Canice's Cathedral*, p. 165.

[4] *Chartae*, &c., p. 17 (where it is wrongly dated). [5] *Chartae*, &c., p. 16.

[6] C.M.A. ii, 164. [7] C.M.A. ii, 406. [8] Hore's *New Ross*, p. 11.

50.

Grant by David de Sumeri, for the good of his soul and of the soul of Margaret, his wife, to the convent of Duiske of the chapel of Dengheneaghnach, with its tithes and obventions, and those of Acherloski.

Omnibus Sancte Matris Ecclesie filiis ad quos scriptum peruenerit, Dauid de Sumeri eternam in domino salutem.

Noueritt universitas uestra me pro salute anime mee et Margarete uxoris mee et patris mei et matris mee et omnium predecessorum et successorum nostrorum dedisse et concessisse et hac presenti carta confirmasse domui de Valle Sancti Saluatoris et monachis ibidem deo seruientibus capellam de Dengeneaghnach cum decimis et obuentionibus universis ad eam pertinentibus, scilicet decimas et obventiones de Dengheneaghnach et de Acheradloski. In decimis et possessionibus iure perpetuo in puram et perpetuam elemosinam liberam et quietam ab omni exactione et demanda que ad me uel ad heredes meos pertinet sive capella predicta ut capella permaneat sive in matricem ecclesiam prouehatur.

In cuius rei testimonium presens scriptum monachis dicti domus de Valle Sancti Saluatoris contuli sigilli mei munimine roboratum.

His testibus Ecclesie de Sumeri, David de Sumeri, patruis meis, Radulfo et Willelmo patribus meis, David de Rupe, Adam Taleboth, Ythel de Kantintone, Adam de Kantintone, Philippo de Kantintone, Roberto de Kantintone, et multis aliis.

This charter may be approximately dated as of the year 1237. It must be prior to no. 51, which in its turn cannot be later than 1237.

This grant is confirmatory of Charter no. 36, and has to do (see p. 62) with tithes in the diocese of Cloyne.

For [illegible] family, see p. 13. The grantor in this instance was *David de Sumeri* the younger.

Members of the family of *Roche* or *de la Roche* appear several times in our charters. Among the Flemings who came to Ireland at the time of the Anglo-Norman conquest was one Robert Fitz Godobert, enfeoffed near Wexford, whose sons, David, Henry, and Adam, took the name of *de la Roche*, from the castle still known as Roch Castle near Haverfordwest.[1] *David Roche*, probably to be identified with the witness to this charter who bore that name, appears in 1229[2] as the father of [illegible] Gerald Roche (see nos. 71, 72). He may be the same man as *David Rocheford* who held Marshal lands in Kilmocar, co. Kilkenny, in 1240[3] and [illegible] 1245 [illegible] against William, and *David de Sumeri*.

For *Ithiel de Caunteton*, who was son of Adam de Caunteton, see p. 62. Probably the *Adam de Caunteton* who appears here was, in his turn, son of Ithiel.

Adam Taleboth or Talbot does not seem to be known elsewhere.

[1] Orpen, *l.c.*, i, 392. [2] C.D.I. i, 1679

[3] For the Roche family see Graves, *Presentments of Irish Grievances temp. Hen. VIII*, p. 52, note. [4] C.M.A. ii, 405; cf. R.T.A. 140. [5] C.D.I. i, 2763.

51.

Grant by D., bishop of Cloyne, at the presentation of David de Sumeri, the patron [no. 50], to the convent of Duiske, of the chapel of Dengheneaghnach, and of Acherloski.

Omnibus Christi fidelibus has literas uisuris vel audituris D. dei gratia Clonensis episcopus eternam in domino salutem.

Nouerit uniuersitas uestra nos diuine caritatis intuitu et ad presentationem Dauid de Sumeri patroni dedisse et concessisse dilectis in Christo filiis et uiris uenerabilibus abbati et conuentui de Valle Sancti Saluatoris Cisterciensis ordinis capellam de Dengheneaghnach et de Acheradloske cum omnibus pertinentiis suis iure perpetuo in proprios usus possidendam.

In huius rei testimonium presenti scripto sigillum nostrum apposuimus.

Only a small fragment of the bishop's seal is left. This charter can be dated within a year, for *David M'Kelly*, who became (*teste* Cotton) bishop of Cloyne in 1237, was advanced to the see of Cashel in 1238. It is a confirmation of no. 50 by the bishop of the diocese.

52.

Confirmation by M., Archbishop of Cashel, of the grant made by the bishop of Cloyne [no. 51] to the convent of Duiske, of the chapels of Dengheneaghnach and Acherloski.

Uniuersis Christi fidelibus ad quos presens scriptum peruenerit M. dei gratia Cassellensis archiepiscopus salutem in domino.

Nouerit uniuersitas uestra nos capellam de Denghenoghnacht et de Acheradhloski cum omnibus pertinentiis suis abbati et conuentui de Valle Sancti Saluatoris Cisterciensis ordinis sicut melius et plenius carta uenerabilis in Christo fratris Clonensis episcopi cettatur† iure perpetuo possidendam confirmasse.

In cuius rei testimonium presenti scripto sigillum nostrum apponi fecimus.

Valeat uniuersitas uestra in domino.

The archbishop's seal has gone. *Marian O'Brien*, archbishop of Cashel, died before October, 1237, so that this instrument (which is the confirmation by his metropolitan of the bishop's grant set out in no. 51) must belong to that year.

The archbishop of Cashel and the abbots of Duiske and Jerpoint appear as Papal Mandatories in 1240.[1]

[1] *Cal. of Papal Letters*, 1240, 17 Kal. Dec.

53.

Inspeximus, at the petition of the convent of Duiske, by G., bishop of Ossory, of the Privilegium, granted by Pope Innocent IV to the Cistercian Houses in Ireland, exempting them from tithes.

Dated at the episcopal manor of Loch, 14 Feb., 1245.

Uniuersis Sancte Matris Ecclesie filiis ad quos presens scriptum peruenerit G. diuina miseratione Ossoriensis ecclesie humilis minister eternam in domino salutem.

Nouerit uniuersitas uestra nos priuilegium domini pape Innocentii quarti sub hac forma inspexisse:

"Innocentius episcopus seruus seruorum dei dilectis filiis abbatibus et conuentibus Cisterciensis ordinis in Hibernia constitutis salutem et apostolicam benedictionem.

Solet annuere sedes apostolica piis uotis et honestis petentium precibus fauorem beniuolum impertiri. Cum igitur sicut ex parte uestra fuit propositum coram nobis ordini uestro et uobis a sede apostolica per priuilegia et indulgentias sit indultum, ut nullus a uobis de uestrorum animalium nutrimentis uel aliis, pro eo quod animalia uestra in pastura uel custodia sua habeant, decimas exigere, uel quomodolibet extorquere, presumat; et si quis in benefactores uestros, pro eo quod aliqua uobis beneficia uel obsequia ex caritate prestiterint, excommunicationis suspensionis uel interdicti sententias promulgarit, huiusmodi sententie tanquam contra apostolice sedis indulta prelate decernuntur per eandem indulgenciam irrite ac inanes: quia nonnulli ecclesiarum prelati ordinarii et rectores, spretis priuilegiis et indulgentiis supradictis, uos et benefactores uestros super hiis multiplici uexatione fatigant, nobis humiliter supplicastis ut indempnitati nostre prouide in hac parte paterna sollicitudine curaremus:

Nos igitur et uestre prouidere quieti et molestantium maliciis obuiare uolentes, ne quis contra indulta priuilegiorum apostolice sedis a uobis uel aliis occasione premissa huiusmodi decimas exigere, uel in uos seu alios ob hoc et eciam benefactores uestros prefatas sententias promulgare presumat, auctoritate presentium districtius inhibemus, quas si promulgare forsan contigerit eadem auctoritate decernimus irritas et inanes.

Nulli ergo omnino hominum liceat hanc paginam nostre inhibitionis infringere uel ei ausu temerario contraire. Si quis autem hoc attemptare presumpserit indignationem omnipotentis dei et beatorum Petri et Pauli apostolorum eius se nouerit incursurum.

Datum Laterani xvi Kalend: Marcii pontificatus nostri anno primo."

Hos vero in huius rei testimonium ad petitionem abbatis et conuentus de Valle Sancti Salvatoris, eo quod singulis uiarum pericula portare formidant, presenti scripto sigillum nostrum duximus apponendum.

Datum apud manerium nostrum de Loch : anno gratie MCCXLIIII. xvi Kalend : Februar : consecrationis uero nostre anno primo.

Valete.

The bishop was *Geoffrey de Turville*, who succeeded to the see of Ossory in 1244. He secured from the Crown valuable privileges for the episcopal manors of his see ;[1] *Logh* is named as one of these manors in the ' Red Book of Ossory ' ; it was afterwards called ' Bishopslough.'

The fact that it was the bishop of *Ossory* (not of Leighlin) who was asked by the convent to certify the Papal Privilegium shows that Duiske was reckoned as in the diocese of Ossory at the time (see p. 25).

Innocent IV was elected Pope on 25 June, 1243, and the date of the Privilegium which he gave to the Irish Cistercian houses was 14 February, 1244. By Royal mandate of August, 1256, Cistercians, as well as other orders, were exempted from payment of tithes out of parish churches which they held to their own use.

54.

Confirmation by Matilda, Marshal of England, Countess of Norfolk and Warrenne, of the union of the abbey of Killenny with the abbey of Duiske, as decreed by the General Chapter of the Cistercian Order [in no. 22].

Omnibus presens scriptum uisuris uel audituris Matilda Marescallus Anglie Comitissa Norfolk et Warenne salutem in domino.

Nouerit uniuersitas uestra nos diuine pietatis intuitu confirmasse unionem abbatie de Killenny cum omni iure suo et omnibus rebus ad ipsam pertinentibus cum abbatia de Valle Sancti Saluatoris quam dominus Willelmus pater noster fundauit, sicut continetur in statuto et sanctione domini abbatis et capituli generalis Cisterciensium celebrati anno uerbi incarnati millesimo ducentissimo uicesimo septimo.

Et ut ista confirmatio inperpetuum firma perseueret eam presenti scripto sigilli nostri appositione roborauimus.

Hiis testibus Dominis Hugone le Bigot, Radolpho le Bigot, Adam de Hereford, Bernardo de Maruille, Rogero de London, Roberto Waspail, Johanne de Killergi, Rogero le Poer, Thoma de Kantinton, et multis aliis.

A small piece of the seal is still attached to this charter, which must have been executed after *Matilda Marshal* became "Marescallus Angliae," i.e. after December, 1245, when her last surviving brother died (see p. 32), and she succeeded to her great estates. The two first witnesses, *Hugh Bigod* and *Ralph Bigod*, were her sons (see p. 32).

The charter, of which an early transcript is also extant (see p. 49), may be assigned to the year 1246.

[1] Carrigan, i, 37.

For the de Hereford family see p. 49; *Adam de Hereford*, who appears as a witness, may be the same person as the man of that name who witnessed William Fitz Geoffrey's charter of Kells in 1215, but he may just as well belong to a later generation.

Robert Waspail was witness to a charter of Gerald Prendergast (see p. 68) about 1230;[1] and *Roger le Poer* appears again in no. 59, where he is designated a 'knight' (*miles*), and also in unpublished Kells charters about 1230 and 1257.

For *Thomas de Caunteton* see p. 62.

John de Killergi does not seem to appear again: probably *Killergi* ought to be identified with Killerig, N.E. of Urglin, co. Carlow, where a preceptory was founded for Knights Templars by King John.

Mention is made in the Extracts from the Duiske Registers, which we cite as L, of a charter of W. bishop of Leighlin, confirming the convent of Duiske in the possession of the church of "Dunmtadge" (see no. 49). This should be noted here, as it is said to have been dated in 1249, in the 20th year of Bishop William's episcopate; but no such charter is extant: see p. 36.

55.

Confirmation by King Henry III of the union of the abbey of Killenny with the abbey of Duiske, as sanctioned by William Marshal the younger [no. 25] and the General Chapter of the Cistercian Order [no. 22].

Dated at Woodstock, 11 August, 1252.

Henricus dei gratia Rex Anglie Dominus Hibernie Dux Normannie Aquitanie et Comes Andegauie Archiepiscopis Episcopis Abbatibus Prioribus Comitibus Baronibus Justiciariis Vicecomitibus Prepositis Ministris et omnibus Balliuis et fidelibus suis salutem.

Unionem abbatie de Killenny factam abbatie de Valle Sancti Saluatoris per abbatem et capitulum generale Cisterciensium, quam Willelmus Marescallus quondam Comes Pembrock abbati et monachis predictis Sancti Saluatoris confirmauit cum suis pertinentiis ratam habentes et gratam heredibus nostris, prefatis abbati et monachis Sancti Saluatoris concedimus et confirmamus sicut instrumentum predicti capituli Cisterciensis, et confirmatio eiusdem Comitis quam idem abbas et monachi inde habent rationabiliter testatur.

Hiis testibus uenerabili patre W. Bathonensi et Wellensi episcopo, Galfrido de Lezinnan fratre nostro, Radolpho filio Nicholai, Johanne

[1] *Chartae, &c.*, p. 17.

[2] R.T.A. 189. Westpalstown in co. Dublin derives its name from the family of Wispal (see Reeves, *Primate Colton's Visitation*, p. 13).

Maunsell preposito Beuerlacensi, Magistro Willelmo de Kilkenny archidiacono Couentry, Roberto de Mucegros, Roberto Walerand, Nicholao de Sancto Mauritio, Henrico le Petteuin, Rogero de Lokinton, Roberto le Norreys, et aliis.

Datum per manum nostram apud Wodestok undecimo die Augusti anno regni nostri tricesimo sexto.

The seal royal is still attached to this document, with part of the legend still uninjured:

HENRICVS DEI GRATIA REX — HENRICVS DUX . . . AQVITANIE COMES ANDEGAVIN.

The confirmation is also preserved in the Record Office, London,[1] and is printed by Dugdale.[2] A note of its existence was kept in the Extracts from the Duiske Registers, which we call E. It is on record that the fee paid by the Abbot of Duiske to obtain this royal confirmation of the union of Killenny with his convent was "three marks in bezants."[3]

An early transcript of this valuable document has also survived (see p. 63).

All the witnesses were men of high station at the royal court. Most of them appear elsewhere as attesting other Irish charters granted by Henry III: e.g. the charters to Cork, Drogheda, and the Hospitallers of St. John of Jerusalem, which were executed respectively in the years 1241, 1247, and 1253.[4]

William de Bitton was bishop of Bath and Wells from 1248 to 1264.

Geoffrey de Lusignan, who is described as "the King's brother,"[5] was son of Hugh de Lusignan, count of La Marche, who had married (in 1220) Isabella of Angoulême, the widow of King John and the mother of Henry III. The king and Geoffrey de Lusignan were thus half-brothers.

Ralph Fitz Nicholas was one of the king's seneschals.[6] He married Alice Peche,[7] a granddaughter of Stephen de Hereford (see p. 49).

John Maunsell was keeper of the great seal, and one of the most trusted counsellors of the king. He played a large part in public affairs, and represented his royal master in various important missions on the Continent. The provostship of Beverley was only one of his benefices, for he was a pluralist on the grand scale, being reputed to hold as many as three hundred ecclesiastical offices of emolument.

William of Kilkenny was another lawyer-ecclesiastic. He filled several legal positions of importance, among them being that of keeper of the great seal. He was Archdeacon of Coventry, and was appointed Bishop of Ely in 1255. He had been Chancellor of Ossory, and indeed was elected bishop in 1230, but was not consecrated for that see.[8]

Robert Walerand is said to have occupied a position among the knights of the royal court similar to that which John Maunsell held among the clerks.[9] He was one of the king's seneschals, and subsequently Warden of the Cinque Ports.[10] He

[1] Charter Roll 36 Hen. III, m 5. [2] *Monast. Anglicanum* (ed. 1830), vi, 1135.
[3] Orig. Roll 36 Hen. III, m 14. [4] *Chartae*, &c., pp. 25–28.
[5] See *Chartae*, p. 28, and *Cal. of Papal Letters*, 3 Non Sept., 1252.
[6] See *Royal Letters Henry III*, vol. ii, p. 95; and vol. i, *passim*.
[7] R.T.A. 103. [8] See p. 70. [9] See D.N.B. s. v. "Walerand, Robert."
[10] *Royal Letters Henry III*, vol. ii, *passim*.

had a special judicial connexion with Ireland, having received custody of the Marshal estates in 1246, and he appears as 'Official of the Court of Dublin' in 1281.[1]

Henry le Poitevin, or Henry of Poitou, may perhaps be identified with 'Henricus Pictavinus, a citizen of Genoa,' whose son was given a benefice in the diocese of Lincoln in 1251.[2]

56.

Inspeximus by King Henry III of the Charter which William Marshal the younger granted to the convent of Duiske [no. 12], and confirmation of the same.

Dated at Woodstock, 11 Aug., 1252.

Henricus Dei gratia Rex Anglie Dominus Hibernie Dux Normannie Aquitanie et Comes Andegauie Archiepiscopis Episcopis Abbatibus Prioribus Comitibus Baronibus Justiciariis Vicecomitibus Prepositis Ministris et omnibus Balliuis et fidelibus suis salutem.

Inspeximus cartam quam Willelmus Marescallus quondam Comes Penbr' fecit abbatie Sancti Saluatoris de ordine monachorum Cisterciensi in Hibernia in hec verba: "Willelmus Marescallus [*as in no.* 12 *verbatim to*] maliciose uexet aut grauet uel in aliqua re disturbet.

Quicunque autem facere presumpserit dei maledictionem et nostram simul et forisfacturam predemonstratam se nouerit incidisse; quicuncumque uero locum ipsum et elemosinam patris nostri ac nostram eidem assignatam promouerint seu manu tenuerint ut cum dei benedictione et nostra remunerationem eternam inueniant.

Hiis testibus Domino Petro Ossoriensi episcopo, Johanne Marescallo, Thoma filio Anthonii tunc senescallo Legenie, Henrico le Buteiller, Waltero Lungespee, Willelmo Crasso, Hamone Crasso, Henrico de Kernet, Reginaldo de Kernet, Magistro Deodato et multis aliis."

Nos autem predictas donationes et concessiones ratas habentes et gratas eas pro nobis et heredibus nostris concedimus et confirmamus sicut predicta carta rationabiliter testatur.

Hiis testibus uenerabili patre W. Bathonensi et Wellensi episcopo, Galfrido de Lezimnan fratre nostro, Radolpho filio Nicholai, Johanne Marescall' preposito Beuerlacensi, Magistro Willelmo de Kilkenny archidiacono Coventrensi, Roberto de Muscegros, Roberto Walerand, Nicholao de Sancto Mauricio, Henrico le Peyteuin, Rogero de Lokintone, Roberto le Norreys, et aliis.

Datum per manum nostram apud Wodestok undecimo die Augusti anno regni nostri tricesimo sexto.

Part of the Great Seal is still attached to this document, which is also preserved

[1] Christ Church Deeds (Dublin), no. 122; cf. C.D.I. i, 3174.
[2] *Cal. of Papal Letters*, 7 Id. Jun., 1251.

in the Record Office, London,[1] and is printed by Dugdale.[2] The fee paid by the convent was the same as for no. 55, viz.: "three marks in bezants"; and the witnesses are the same as for that instrument, executed on the same day.

57.

Letters Patent of unlimited protection granted by King Henry III to the Convent of Duiske.

Dated at Woodstock, 11 Aug. 1252.

Henricus Dei gratia Rex Anglie Dominus Hibernie Dux Normannie Aquitanie et Comes Andegauie omnibus balliuis et fidelibus suis ad quos presentes littere peruenerint salutem.

Sciatis quod suscepimus in protectionem et defensionem nostram abbatiam abbatem et conuentum de Valle Sancti Saluatoris in Hibernia homines terras res redditus et omnes possessiones eorum. Et ideo uobis mandamus quod predictos abbatiam abbatem et conuentum homines terras res redditus et omnes possessiones eorum manu teneatis protegatis et defendatis, non inferentes eis uel inferri permittentes iniuriam molestiam dampnum aut grauamen. Et si quid eis forisfactum fuerit, id eis sine dilatione faciatis emendari.

In cuius rei testimonium has litteras nostras eis fieri fecimus patentes. Teste me ipso apud Wodestok undecimo die Augusti anno regni nostri tricesimo sexto.

Half of the Great Seal is still attached to this instrument.[3]

58.

Consent, with reservations, of Matthew, abbot of Mellifont, and his convent, to the union of the abbey of Killenny with the abbey of Duiske.

Dated at Mellifont, March, 1253.

Uniuersis Christi fidelibus presentes literas inspecturis uel audituris Frater Mattheus dictus abbas Mellifontis et eiusdem loci conuentus eternam in domino salutem . . . . . .

. . . nobis displiceat distributio domorum generationis nostre facta per abbates Trium Fontium, Frigidi Montis, de Margan . . . . . auctoritatem capituli generalis ad redigendum abbatias in grangias et ad coniungendas abbatias abbatiis . . . . . ordinatio nobis et successoribus nostris grauis sit et nociua et spem adhunc in futurum conceperimus reuocandi filias . . . . . tamen profectui domus de Valle Sancti Saluatoris que nobis et domui nostre pluries multiplicia fecit et contulit

[1] Charter Roll 36 Hen. III, m 6.

[2] *Monast. Anglic.* (ed. 1830), vi, 1135.

[3] See Patent Rolls 36 Henry III, m 4.

beneficia . . . . . Valle dei abbatie per predictos abbates auctoritate capituli generalis eidem domui de Valle Sancti Saluatoris factam ratam habemus et gratam ac firmiter . . . . . omni calumpnia et . . . . . ad unionem predictam tamen quod aliquo tempore succedente nobis uel domui nostre contingere . . . . . presenti scripto et sigilli nostri impressione roborauimus.

Datum apud Mellifontem die Martis prox . . . . . millesimo ducentesimo quinquagesimo tertio.

The original deed is not extant, but we have an early transcript of it (see p. 49). It alludes to some earlier instrument, not now extant, in which the abbots of Trois-Fontaines, Froidmont, and Margam had issued directions for the amalgamation of Cistercian houses in Ireland, including Killenny and Duiske.

The abbey of Trois-Fontaines, in the diocese of Châlons, and province of Rheims, was one of the oldest Cistercian houses, having been founded from Clairvaux in 1118.[1] For Froidmont, see p. 44.

59.

Grant by Richard, son and heir of Alan de St. Florence, to the convent of Duiske, of his land of Makarne; viz., half a carucate between the Spring of Athboly Moelmethe and Lynans on the east; thence on the north to Brethgortyn; thence to the boundary of Grathsighan; thence to the place where the Templars formerly erected a Cross between their land of Adkelthan and the convent land; thence to Baliodowisky, as far as Rathgory, and so back to the aforesaid Spring; rent free.

Sciant presentes et futuri quod ego Ricardus filius et heres Alani de Sancto Florencio dedi concessi et hac presenti carta mea confirmaui deo et beate Marie et monachis de Valle Sancti Saluatoris ibidem deo seruientibus totam terram bosci que uocatur Makarne cum omnibus suis pertinentiis, que inest per diuisas carucate terre cum suis pertinentiis per diuisas subscriptas: uidelicet, a fonte qui uocatur Athboly-Moelmethe, et sic ex parte orientali usque ad locum que uocatur Lynans, et de loco illo ex parte aquilonali usque ad locum qui uocatur Brethgortyn, et sic de loco illo usque ad finem illius loci qui uocatur Grathsighan, et de loco illo sic usque ad quendam locum ubi Templarii quondam quandam crucem erexerunt ad diuisam habendam inter terram ipsorum de Adkelthan et terram dictorum monachorum de Valle Sancti Saluatoris, et sic usque ad diuisas terre dictorum monachorum que terra uocatur Baliodowisky, et sic sicut diuise sint inter predictam terram de Makarne et Baliodowisky usque ad Rathgory, et sic usque ad predictum fontem de Athboly-moelmethe: habendam et

[1] *Gallia Christiana*, ix, 957.

tenendam dictam terram cum omnibus suis pertinentiis dictis monachis et eorum successoribus de me et heredibus meis in puram et perpetuam elemosinam in perpetuum a deo libere et quiete, sicut aliqua elemosina liberius melius securius plenius dari potest et incartari absque aliqua demanda et exactione seculari.

Ego autem et heredes mei predictam terram cum omnibus suis pertinentiis predictis monachis et eorum successoribus quocumque casu contingente contra omnes warantizare tenebimur.

Ut autem hec mea donatio concessio et presentis carte confirmatio robur stabilitatis in posterum obtineant presentem cartam sigilli mei impressione duxi confirmandam.

Hiis testibus Domino Willelmo de Dene tunc senescallo Ossorgye, Domino Willelmo Malherbe tunc senescallo de Katherlach, Domino Hugone Purcell, Domino Mauricio de London, Domino Johanne Cadel, Domino Ada de Sancto Johanne, Domino Rogero le Poer militibus, Rogero de Pembrochia, Thoma de Kantingtonia, Reso Beket, Michaelao filio Ricardi, et aliis.

Most of the places named in this charter were in the baronies of Shelburne and Shelmalier, co. Wexford. *Makarne* or Ballymacarne, in the barony of Forth, was afterwards the seat of the Stafford family; *Ath-boly* is probably to be identified with the village of Boley in the parish of Owenduff; *Lynans* is now Bally-lennan, which is near the head of Bannow Bay; *Baliodowisky* is the equivalent of Owenduff (*baile duibh uisge* = town of the black water); and *Rathgory* is the modern *Rathgarogue* in Ballyanne parish, Bantry. We have not succeeded in locating the *Templars' Cross*, of which the charter makes mention, or their land at *Adkelthan*. In the thirteenth and fourteenth centuries there were frequent disputes as to the ownership of lands in the south of co. Wexford between the Knights Templars, who had a Preceptory at Kilclogan (near Templetown Church) and the Cistercian monks of Dunbrody.

The family of *St. Florence* appears in several subsequent charters (nos. 76, 78, 82, 83, 87). It would seem that before 1255 (which we take as an approximate date for the charter now under consideration, no. 59), *Alan de St. Florence* held lands in the south-west of co. Wexford. Here we have *Richard de St. Florence*, his son and heir, who appears again in 1280, quitting his claim to *Athboly* (no. 78; cf. also 76), and also in 1289 (no. 87).

The first witness, *William de Dene*, appears elsewhere as *seneschal of Kilkenny* (or of *Ossory*, as he is here described) about 1260,[1] and he died in 1261.[2] He is described as holding land in co. Wexford in 1230;[3] and as sheriff of Wexford in 1241.[4] About the latter date he witnessed some of Walter Marshal's charters to Dunbrody Abbey.[5] In 1247 he held Marshal lands in Ogenti, near Thomastown, co. Kilkenny.[6]

William Malherbe, seneschal of Carlow, appears along with *John Cadel*, knight,

[1] See 35th Report of Deputy Keeper of the Irish Records, p. 38.
[2] C.M.A. ii, 316. [3] R.T.A. 188. [4] C.M.A. ii, 177.
[5] C.M.A. ii, 164–166. [6] C.M.A. ii, 406.

in unpublished Kells charters, one of them being dated 1257.[1] One of the Malherbe family held Marshal lands in co. Kilkenny in 1247.[2]

Hugh Purcell, baron of Lochmoe, married as her second husband Beatrice, daughter of Theobald Walter the First. He held Marshal lands at Athenirke, co. Kilkenny, in 1247;[3] and appears elsewhere as witnessing charters of William Marshal the younger,[4] and of Walter Marshal.[5] (See also p. 21.)

Maurice de London is a name which has already appeared in our charters (see p. 21).

In 1284 Nicholas de St. John, archdeacon of Ferns, administered the estate[6] of *Adam de St. John*, who is probably to be identified with the knight of that name attesting this charter.

For *Roger le Poer* and *Thomas de Caunteton* see p. 80; for *Roger de Pembroke* p. 75; and for *Ris Beket* p. 73.

In an indult of Innocent IV, issued 11 December, 1253, the abbots of Tintern and Duiske are named as conservators: Duiske being described as in the diocese of *Ossory* (see p. 25). The same abbots were appointed conservators in the case of a faculty in 1254.[7]

60.

Agreement for an exchange between the convent of Duiske and Richard de Cardiff; the convent to cede to him five acres of meadow near his house in Carraman, and three acres in the holding of Ballybegan which Robert de Cardiff, his father, granted to the convent [no. 47]; in exchange for eight acres of meadow lying near the abbot's land at Coppenagh.

Dated 30 Nov. 1256.

Ita conuenit inter abbatem et conuentum de Sancto Saluatore ex una parte et Ricardum de Kerdyf ex altera circa festum Beati Andree anno domini millesimo ducentisimo quinquagesimo sexto:

Quod predicti abbas et conuentus concesserunt et tradiderunt pro se et successoribus suis predicto Ricardo de Kerdyf quinque acras prati iacentes prope domum suam in Karramman et tres acras in tenemento de Balybegan quas Robertus de Kerdyf pater predicti Ricardi dedit predicte domui Sancti Saluatoris prout carta eorum inde confecta testatur habendas et tenendas predicto Ricardo dictas octo acras cum suis pertinentiis sibi et heredibus suis in perpetuum: in excambium octo acrarum prati cum suis pertinentiis iacentium prope terram dicti abbatis que vocatur Athe petard, sicut predicta terra cum suis pertinentiis melius perambulata et assignata est, predicte domui in perpetuum habenda.

[1] See also C.D.I. iii, p. 294, where William de Malherbe is mentioned as having been seneschal of Carlow.

[2] C.M.A. ii, 406. [3] C.M.A. ii, 406. [4] R.T.A. 138, 357; cf. 142, 352.

[5] C.M.A. ii, 165. [6] Hore's *Ferns*, p. 191. [7] *Cal. of Papal Letters*, i, 293.

Et ut hec concessio traditio et confirmatio futuris temporibus robur stabilitatis et firmitatis optineant presenti scripto in modum cyrographi confecto tam predictus abbas quam predictus Ricardus impressiones sigillorum suorum alternatim apposuerunt.

Hiis testibus Domino Thoma de Kantewell, Rys Beket, Henrico de Kantewell, Geroldo de Clunleth, Willelmo Orkor, Rogero Orkor, et aliis.

It appears from this document that *Richard de Cardiff's* house was at *Carraman*, in the barony of Gowran, co. Kilkenny, between Coppenagh and Kilfane. See p. 74 for *Ballybegan* and the *de Cardiff* family;[1] and p. 73 for *Ris Beket*.

The *Cantwells* were neighbours of *Richard de Cardiff*, holding land in Kilfane from the early days of the Anglo-Norman invasion. An effigy of a knight in armour, exhibiting the Cantwell arms, is still to be seen among the ruins of the old church at Kilfane.

Of the other witnesses we know nothing. Clundeleth Church belonged to the Priory of St. Saviour, Ross;[2] and it is possible that *Gerald de Clunleth* came from thence.

61.

Lease by Griffin le Gros to the convent of Duiske, in consideration of a payment of twenty marks, of one carucate in Bantry, called Gilkhac, which he held from Thomas le Hore, and afterwards from Hugh his son; the monks to be answerable to his lord for the rent, as stated in the charter of Thomas le Hore.

Sciant presentes et futuri quod ego Griffinus Grossus dedi concessi et hac presenti carta mea confirmaui Deo et beate Marie et domui Sancti Saluatoris ordinis Cisterciensis et monachis ibidem deo seruientibus unam carucatam terre cum suis pertinentiis in Bentrie; illam uidelicet quam tenui primo de Thoma le Horhe et postea de Hugone le Horhe filio eiusdem Thome le Horhe, que etiam carucata terre uocatur Gilkhac, habendam et tenendam dictam terram cum suis pertinentiis dictis monachis et suis successoribus per easdem metas et bundas per quas ego dictam terram tenere consueui, adeo libere et quiete pro me et heredibus meis in perpetuum sicut ego illam dare et warantizare possum absque aliquo retenemento ad me uel ad heredes meos pertinente.

Hoc tamen saluo quod dicti monachi respondeant domino meo de quo dictam terram tenui de annuo redditu prout continetur in carta Thome le Horhe quam quidem cartam una cum carta mea perfeci et cum terra predicta dictis monachis liberaui.

Pro hoc autem donatione et concessione mea dederunt michi dicti monachi pre manibus uiginti marcas esterlingorum ingersummam. Et ego et heredes mei predictam terram predictis monachis in perpetuum warantizabimus. Ut

[1] *Richard de Cardiff* appears in 1269 [Inq. 54 Hen. III, no. 64.] [2] C.M.A. ii. xc.

autem hec donatio et concessio mea rata et stabilis inperpetuum permaneat presentem cartam sigilli mei impressione roboraui.

Hiis testibus: Domino Helya filio Ricardi de Prendelgast, Alano filio Milonis, militibus, Philippo Boscho, Nicholao Boscho, Roberto Huschard, Radulfo Kod, Thoma Kod, Johanne Olenon, Thoma Longo, Matheo de Cnoc, R. de Ponte Cardonis, et multis aliis.

We date this lease about the year 1258. It must be prior to 1259, because *Alan Fitz Milo* was dead in that year (see Charter 62), and Charter 66 (of date 1262–1265) cannot be long subsequent to it. As has already been observed (p. 20), this is the first lease granted on terms by an individual lessor, which we find among the abbey muniments.

The situation of the land in question, which is variously called *Gilkhac*, Ballygilkach (no. 70) and Aunrochewellan (no. 66), cannot be precisely determined. "Guileagh" means "a place producing broom"; and the estate was, doubtless, a tract of wild mountain land in Bantry. The overlords were the *Hore* family, from whom *Griffin le Gros* held as a tenant. This person I have not identified; but the appellation "le Gros" appears in Wexford annals more than once towards the end of the thirteenth century.[1]

The *Hore* family is one of the oldest in co. Wexford. They trace their descent to two brothers, Philip and William le Hore, Anglo-Norman knights who served under Maurice Fitz Gerald, and obtained lands in the county for military services in the first conquest of Ireland. "Le hore" means "the hoary-headed one," as is plain from the forms which the name assumes in Latin (*Canutus*; see no. 70) or in old French (*le Canu*; see no. 66). From the charter before us, we see that *Thomas le Hore* (who was dead when it was executed) was the father of *Hugh le Hore*. The name of Hugh's son was Robert le Hore (see no. 70).

Elias de Prendergast, knight, was son of *Richard de Prendergast* (see p. 42). He appears again in no. 62.[2]

Alan Fitz Milo may have been a son of Milo Fitz David, or Fitz Bishop, whom we have had before (p. 8), but this is uncertain.

The name *Boschus* stands for *Boscher*,[3] a common Wexford name, still surviving in the townland of Busher-town, in the electoral division of Shanbogh (see p. 42, above).

Robert Huschard may be the person of that name whom we have had already in 1226 (p. 42). Another of the name appears in 1299.[4]

For the name *Cod*, see p. 42.

Of the remaining witnesses we know nothing.

The name *de Ponte Cardonis* is the Latin form of Pont Chardon or Punchardon, which occurs 1288–1302 in co. Kildare and elsewhere.[5]

[1] See Hore's *Ferns*, p. 192, and *Wexford*, p. 94.

[2] See also R.T.A. 191.

[3] For the juxtaposition in co. Wexford of the names Nicholas Busher, William Hore, and Robert Cod, in 1620, see Hore's *Wexford*, p. 235.

[4] Hore, *Ferns*, p. 8.

[5] C.D.I. iii, 178, 497; v, 37.

62.

Ratification by Thomas, son of Alan Fitz Milo, of an agreement of date 29 Sept., 1253, between his father and the convent of Duiske: by which, in consideration of a sum of 40 marks in silver, Alan Fitz Milo granted to the convent for nine years one carucate of land called Molyngreye and Karrechrech; one carucate at Ballytarsne (held by the Irish from the said Alan); his mill; his whole lordship, and whatever accrues from Thomas Fitz Odo, who holds one carucate at a rent of one mark, from Philip the Miller who holds half a carucate at a rent of half a mark, from Robert Fitz Hugh, who holds half a carucate at a rent of seven shillings and sixpence, and from Conechor Ohenekyr, who holds half a carucate at a rent of eight shillings; And a further Agreement by Thomas son of Alan, that in consideration of a further payment of 20 marks, the lease shall be extended for six years longer, until 29 Sept., 1268.

Dated St. Martin's Day (Nov. 11), 1259.

Omnibus Christi fidelibus presens scriptum uisuris uel audituris Thomas filius et heres Alani filii Milonis salutem in Domino.

Nouerit uniuersitas uestra quod, cum ego post mortem bone memorie Alani filii Milonis patris mei anno gratie millesimo ducentesimo quinquagesimo nono terram que fuit dicti Alani iure hereditario recuperassem, inueni abbatem et conuentum de Dowisky uestitos et saisitos de quadam particula terre que fuit dicti Alani comitatu Weseford, qui cum de introitu allocuti fuissent ostenderunt quoddam cyrographum signatum sigillo dicti Alani patris mei et confectum inter dictum abbatem et conuentum et sepedictum Alanum per hec uerba:

"Hec est conuentio facta inter abbatem et conuentum de Dowisky ex una parte et Dominum Alanum filium Milonis ex altera, uidelicet quod dictus Alanus pro se et heredibus suis concessit et tradidit dicto abbati et conuentui unam carucatam terre cum omnibus pertinentiis suis que uocatur Molyngreye et Karrechrech, quam uidelicet tenuit in dominico suo in confectione presentis scripti; et unam carucatam terre cum suis pertinentiis que uocatur Balitarsne quam Hibernienses dicti Alani termino predicto tenuerunt, et molendinum suum cum tota sequela quam ullo tempore habere consueuit absque ullo redditu inde alicui dando; et totum dominium cum omnibus redditibus escaetis et exitibus; et quicquid aliquo modo accidere poterit de Thoma filio Odonis qui unam carucatam terre tenet per redditum unius marce per annum; de Philippo Molendinario qui dimidiam carucatam tenet per redditum dimidie marce; de Roberto filio Hugonis qui dimidiam carucatam terre tenet pro septem solidis et sex denariis per annum; de Conechor Ohenekhyr qui dimidiam carucatam terre tenet per redditum octo solidorum per annum: habendas et tenendas dicto abbati et conuentui dictas terras tenementa

tenentes modem firmam cum omnibus predictis pertinentiis ad terminum nouem annorum [illegible] incipiente in festo beati Michaelis anno regni regis Henrici [illegible] septimo si tunc regnauerit uel non, bene et in pace cum omnibus libertatibus et locis et consuetudinibus quas idem Alanus committere pro se et heredibus suis potest; absque retinemento ad opus dicti Alani uel heredum suorum facto uel faciendo dum dictus terminus durauerit ad se uel [illegible] quadraginta marcis argenti quas dicti abbas et conuentus [illegible] et in hereditate cum pertinentiis, prout in eadem predictum est, dederunt:

Et est sciendum quod dictus Alanus uel heredes sui nullum hominem [illegible] de predicta terra cum suis pertinentiis poterunt feoffare [illegible] dicto Alano uel aliquibus nisi tamen dictis monachis. Cum modo ipsi tamen pro eadem uelint dare quantum et alii pacare et in fine dicti termini dicta terra cum suis pertinentiis dicto Alano uel heredibus suis sine contradictione redire debet, nisi alia conuentio interim inter dictum Alanum et dictos monachos super dicta terra emergatur; redditus autem et alii exitus dicte terre cum suis pertinentiis dictis monachis in ulteriori termino remanere debent. Et ad maiorum huius rei securitatem idem abbas et dictus Alanus huic scripto in modum cyrographi confecto sigilla sua alternatim apposuerunt Hiis testibus et cetera."

Quod cum dictum cyrographum euidentius inspexissem et impressionem sigilli patris mei super illud impositum ueracius agnouissem, sciensque et intelligens per tenorem predicti cyrographi dictum patrem meum tantam summam pecunie de dictis monachis ad negocia sua urgentissima recepisse, omnia que in dicto cyrographo contenta fuerunt penitus ratificaui, et ea pro bono habui et bona uoluntate confirmans contra omnes per dictum terminum warantizare decreui pro me et heredibus meis ad hec:

Sciatis uniuersitas uestra quod ego circa festum beati Martini anno gratie millesimo ducentisimo quinquagesimo nono necessitate ductus recepi de dictis abbate et conuentu uiginti marcas sterlingorum, pro quibus uiginti marcis concessi pro me et heredibus meis predictis abbati et conuentui totam terram cum pertinentiis et omnia que continentur in supradicto cyrographo possidenda per terminum sex annorum ultra terminum contentum in dicto cyrographo; ita quod dicta terra cum suis pertinentiis dictis monachis remaneat a tempore receptionis predictarum uiginti marcarum quousque nouem anni post predictum terminum plenarie fuerint completi, cum omnibus libertatibus in sepedicto cyrographo contentis, per predictum terminum de me et heredibus meis contra omnes warantizanda.

Hoc autem adiecto quod si ego infra dictum terminum uiam uniuerse carnis ingressus fuero et heredes mei aliquo casu remaneant in custodia dominiorum suorum, uel aliquo alio modo ipsi fuerint de hereditate sua, ita quod dicti monachi aliquid incurrant inpedimentum iacturam uel uexationem per defectum mei uel meorum, quod etiam me uiuente fiat si ita euenerit, uolo et concedo pro me et heredibus meis quod in fine termini predicti dicta terra eis remaneat, quousque de omnibus dampnis sibi illatis pro defectu mei et meorum de exitu predicte terre eis plenarius fuerit satisfactum; et ne aliquis

de huius conuentionis ueritate hesitare presumat presens scriptum sigilli mei impressione duxi roborandum.

Hiis testibus Domino Dauid de Boscho Roardi, Domino Helia de Prendelgast, Domino Willelmo de Prendelgast, Henrico filii Henrici tunc senescallo Weseford, Henrico filio Geraldi tunc vicecomite Weseford, Symone de Foresta, Thoma filio Odonis, Dauid Boscher, et aliis.

For *Alan Fitz Milo* see p. 88.

Probably *Ballytarsne* and *Karrechrech* may be identified with the modern Ballytarsna and Carrowanree, townlands in the electoral division of Killesk, co. Wexford.

David de Boscho Roardi, or *Boisrohard*, or *Borrard* (as it is generally spelt), appears along with *Elias de Prendergast* (see p. 88) as witness to a charter of Stephen de Valle[1] (p. 20) of about the same date as that before us. A *David Borrard* held Marshal land near New Ross in 1306;[2] he may be the same man as our present witness, or one of his family. Neither is to be confounded with *David Boscher*, another witness (see p. 88), who appears again in 1282[3] (see p. 110).

For *William de Prendergast* see p. 42.

We have had *Henry Fitz Henry* before (p. 41). Here he is described as *seneschal of Wexford*, an office which he also served in the following year 1260–1.[4]

Of the remaining personages mentioned in this charter we know nothing.

63.

Grant by Sibyl Bremyl, widow, and Susanna, her unmarried daughter, to the convent of Duiske, of their claim upon 15 acres in Kulbrothyn, in the holding of New Town near the Barrow, which Elias Bremyl, Sibyl's brother, gave her on her marriage with Michael O'Morgan; also of their rights in one acre in Fanken, between the abbey lands and John Hinteberg's land;

as well as of 10 silver pennies yearly rent to be received from the heirs of Thomas the Baker for 7 acres at Drummenbeythe; also of 3 silver pennies rent from Henry, son of Donald the Carpenter, or his heirs, for an acre and a half at Knochanhacheyn; also of 5 silver pennies from Andrew Tannator or his heirs for two acres and a half at Drummenbeythe; also of 8 silver pennies from Adam Connachtach or his heirs for two virgates of land between the burgage of Dermot Connachtach and the land of the aforesaid Michael; also a halfpenny from Peter le Rous or his heirs for a croft:

[1] R.T.A. 191. [2] Hore's *New Ross*, p. 169; cf. Hore's *Wexford*, p. 118.

[3] Hore's *Wexford*, p. 94; cf. C.M.A. ii, 174–177, for charters in which David Boscher appears.

[4] Pipe Roll 45 Henry III (Thirty-Fifth Report Deputy Keeper of the Irish Records, p. 38).

to be held in fee by the convent at a rent of two roses paid on St. John Baptist's Day yearly.

Sciant presentes et futuri quod nos Sibilla Bremyl et Susanna filia mea, in legitima uiduitate mea et in uirginitate filie mee predicte, dedimus concessimus et hac presenti carta nostra confirmauimus abbati et conuentui de Dowysky totum ius et clameum nostrum quod habuimus uel habere potuimus in quindecim acris terre, cum pertinentiis in Kulbrothyn in tenemento Noue Ville iuxta Baruwe, quas Elias Bremyl frater noster mihi dedit in liberum maritagium tempore quo Michael O'Morgan me desponsauit; et ius nostrum unius acre in Fanken que iacet inter terram dicti abbatis ex una parte et terram Johannis Hyndeberge ex altera parte, sicut sunt mensurata per metas et bundas et diuisas.

Insuper dedimus et concessimus predictis abbati et conuentui decem denarios argenti annui redditus recipiendos de heredibus Thoma Pistori uel assignatis eorundem, scilicet de septem acris terre apud Drummanbeythe, uidelicet medietatem ad Pascham et aliam medietatem ad festum beati Michaelis; et tres denarios argenti recipiendos de Henrico filio Donaldi Carpentarii uel de heredibus siue assignatis suis, scilicet de una acra terre et dimidia iacente apud Knochanhacheyn, medietatem ad festum beati Michaelis; et quinque denarios annui redditus recipiendos de Andrea Tannatori uel de heredibus siue assignatis suis de duabus acris terre et dimidio iacentem in Drummanbeythe, medietatem scilicet ad Pascham et aliam medietatem ad festum beati Michaelis; et octo denarios argenti annui redditus recipiendos de Ada Connachtach uel de heredibus siue assignatis suis, uidelicet de duabus uirgatis terre iacentibus inter burgagium Dermitii Connachtach et terram quondam dicti Michaelis, medietatem uidelicet ad Pascham et aliam medietatem ad festum beati Michaelis; et unum obolum recipiendum in festo Paschali de Petro Rufo uel de heredibus siue assignatis suis de quondam crofto:

Habendum et tenendum dictis abbati et conuentui uel assignatis suis de nobis et heredibus nostris uel assignatis nostris in feodo bene et in pace cum omnibus libertatibus et liberis consuetudinibus ad dictam terram et ad dictos redditus spectantibus; reddentes inde annuatim nobis et heredibus nostris uel assignatis nostris dicti abbas et conuentus duas rosas in festo Sancti Johannis Baptiste, pro omni seculari seruitio exactione et demanda.

Nos uero dicte Sibilla et Susanna dictam terram cum predictis redditibus sepe dictis abbati et conuentui sicut predictum est contra omnes mortales in perpetuum warantizabimus acquietabimus et defendemus.

Ut autem hec nostra donatio et concessio et carte nostre confirmatio sit rata et stabilis imposterum sigillorum nostrorum impressione roborauimus.

Hiis testibus Henrico Ketyng, Willelmo Palis, Alexandro le Masun, Thoma Ketyng, Willelmo Ketyng, et aliis.

Two seals have disappeared from this deed.

The small parcels of land with which it is concerned were apparently in the

neighbourhood of the abbey, as *New Town, near the Barrow*, is the town of Graiguenamanagh, which grew up round the monastery. The judiciar's court was held at "Newtown of Dowysky" in 1305.[1]

The only other place-name which we can recognise is *Drummen-beythe*. The Kavanaghs of *Drummin* are commemorated on an eighteenth-century monument in the ruined church of St. Mullins, co. Carlow, and this probably points to the same locality.

We do not know anything of the widow *Bremyl* and her daughter. In 1306, Robert Bremyl of Forth held lands in Balyscandil,[2] and he may have been a kinsman.

For the *Hinteberg* family see p. 17.

Thomas Keting appears at New Ross in 1264,[3] and in New Ross charters about the same date,[4] as a contemporary of David Boscher (see p. 88) and R. de Reidun, seneschal of Carlow.

William Palys is described (in an unpublished Deed among the Ormonde Charters of the same period as this) as 'provost of New Town.'

We assign, provisionally, this charter to the year 1261; but there is no certainty about the date.

64.

Letter approving (despite objections that had been made) the union of the abbey of Killenny with the abbey of Duiske, from John, cardinal priest of St. Laurence in Lucina, to the abbots of Citeaux and the four chief daughter houses of the Cistercian Order.

Dated at Viterbo, 29 May, 1261.

Venerande discretionis patribus et amicis in Christo karissimis, domino abbati Cisterciensi coabbatibusque suis de Firmitate, Clarevalle, Pontiniaco, et Morimundo, frater J. miseratione diuina tituli Sancti Laurentii in Lucina presbyter cardinalis salutem in domino.

Speramus penes discretionem . . . . . in iustis petitionibus uestris deuote promptitudinis affectum sortiri, presertim cum nos intendamus preces uestras cum nobis fuerint oblate speciali prosequi gratia et fauore.

Cum igitur uenerabilis pater et in Christo sinceriter nobis dilectus Dompnus Th: abbas Vallis Sancti Saluatoris in Hybernia tam per uiue uocis oraculum quam per publica instrumenta legitime ostenderat, quod ex prouida dispositione totius capituli generalis necnon domini Cistercii qui tunc pro tempore fuerat ac insuper primorum quatuor abbatum, abbatia Vallis Dei, domini loci accedente consensu, monasterio iam dicto, pro eo quod nullatenus per se subsistere potuit prout instrumenta testantur, laudabiliter unita sit, et in grangiam redacta; non obstante quod fuerat filia Jeripontis, maxime cum ipsa mater eisdem quibus et filia tunc notoriis implicaretur incommodis obnixe

[1] *Cal. of Irish Justiciary Rolls* ii, pp. 153, 466.
[2] Hore's *New Ross*, p. 169; *Cal. of Irish Justiciary Rolls* ii, p. 344.
[3] Hore's *New Ross*, p. 56. [4] C.M.A. ii, 174–177.

uobis supplicationis: quatinus cum dicta domus Sancti Saluatoris per incrementa religionis passim et indies proficiens hospitalitatis gratia non tam infra cenobium quam extra et in grangia specialiter eadem pre ceteris domorum comprouincialium polleat, prout accepimus, odorque aromaticus inibi fragrans innumeros ad dei cultum attrahat et inuitet, quod per patres et predecessores uestros ad augmentum sacre religionis est utiliter promissum factum et confirmatum, itidem et uos ut et etiam consolidentur unionare solitis:

Sunt uero ut dicitur qui contra statutum commune tam necessarium et perutile cum nil aliud agere prenalent nisi ea mouent iniquitatis et detractionis, quibus tamen ut de cetero ora obstruantur loquentium iniqua nostra auctoritate precipimus subscribimus . . . . . : personam dilectionis nostram in fine nobis intime commendatus, propter quod si placet uestris et deuote ab aliis . . . . . insuper negotii de quo supra sit mentio, presentes litteras dicto domino . . . . . ostendi in presentia nostra constituto concessimus patentes.

Datum Viterbii . . . . . proxima ante festum Ascensionis dominice, pontificis domini Alexandri quarti anno septimo.

The original letter is not extant, but we have an early and faded transcript which is difficult to decipher (see p. 63).

The writer was John of Toledo, cardinal priest of St. Laurence in Lucina from 1244 to 1262, when he became cardinal bishop of Porto. He appears repeatedly between 1245 and 1260 in the *Papal Letters* as having charge of ecclesiastical matters in Great Britain and Ireland. He was himself a member of the Cistercian Order, and a learned canonist. The abbot of Citeaux, who at that time was Guillaume Guy, succeeded him as cardinal of St. Laurence in Lucina[2].

65.

Confirmation by Guy, abbot of Citeaux, and the General Chapter of the Cistercian Order, of the union of the abbey of Killenny with the abbey of Duiske.

Dated at Citeaux, 1261.

Frater G. dictus abbas Cisterciensis totusque conuentus ablatum capituli generalis uenerabilibus et in Christo dilectis filiis abbati et conuentui Sancte Saluatoris in Hybernia salutem in Christo.

Cum uere religionis augmento intelligentes uenerabilem patrem B. quondam abbatem Frigidi Montis pro reparatione ordinis et animarum salute uobis contulisse ablatiam Vallis Dei cum omni iure suo, ita ut de cetero non sit abbatia que per se commode subsistere non poterat, sed ad uos pleno iure pertineat cum omnibus ad se pertinentibus, predictam collationem et unionem presentibus litteris confirmauimus, monentes et mandantes quatinus sic studeatis in

[1] Eubel, *Hierarch. Cath.* i. 7. [2] *Gallia Christiana* iv. 986.

caritate proficere et regularibus disciplinis ut semper gaudeamus in domino uos talibus beneficiis ampliasse.

Datum apud Cistercium tempore capituli generalis anno domini millesimo ducentesimo sexagesimo primo.

The original charter is not extant, but we print an early transcript of an Inspeximus (see p. 63). There is also a memorandum of it in the Extracts from the Duiske Registers which we call E.

66.

Lease by Hugh le Hore, son of Thomas le Hore, to the convent of Duiske, of one carucate of land in the holding of Aunrochewellan, called Gilkach, at a rent of eight shillings a year.

Sciatis presentes et futuri quod ego Hugo le Chanu filius et heres Thome le Chanu dedi et concessi et hac presenti carta mea confirmaui abbati de Dowisky et eiusdem loci conuentui unam carucatam terre cum pertinentiis in tenemento de Aunrochewellen que appellatur Gylkach : habendam et tenendam dicto abbati et conuentui et eorum successoribus dictam terram cum pertinentiis de me et heredibus meis adeo libere et quiete plenarie et integre sicut aliqua terra dari uel incartari potest ;

Reddendo inde annuatim dicti monachi et eorundem successores michi et heredibus meis octo solidos sterlingorum ad duos anni terminos, medietatem uidelicet in festo Paschali et aliam medietatem in festo Sancti Michaelis, pro omni seruiti seculario et demanda.

Ego uero Hugo et heredes mei uel assignati predictis abbati et monachis ac eorum successoribus predictam terram cum pertinentiis et cum omni iure suo que ad eandem terram spectat contra omnes homines warantizabimus in perpetuum.

Et ut ista donatio concessio ac presentis carte confirmatio robur firmitatis et stabilitatis in posterum optineat, presentem cartam sigilli mei impressione duxi roborandum.

Hiis testibus Domino Ricardo Daniel tunc senescallo Wesefordie, Domino Willelmo de Weylaund tunc senescallo de Ros, Thoma le Chanu, Willelmo filio Dauid, Thoma Keting, Simone filio Dauid, et aliis.

The lands in question have already come under our notice in Charter 61 (see p. 88) ; as also has the family of *le Hore* or *Canutus*. Probably *Thomas le Hore* who signs as a witness is a son of Hugh, the grantor of the lease, and a grandson of the older Thomas le Hore.

The date of the lease can be approximately fixed by the circumstance that it is witnessed by the seneschals of Wexford and Ross. The seneschal of Ross, who administered the Marshal property in that region, moved the seat of his administration to Carlow before the time of the second Roger Bigod (p. 32) ; and was thenceforward called the seneschal of Carlow.

Now *Richard Daniel* was seneschal of Wexford from Michaelmas, 1261, to Michaelmas, 1262, and probably to Michaelmas, 1263,[1] his predecessor Henry Fitz Henry filling the office from 1259 to 1261.[2]

Again, Hugh de Aleby was seneschal of Carlow from 1260 to 1262; and William le Grasthur from 1265 to 1275.[3] Thus the only years left for *William de Weyland* who appears as seneschal of Ross, i.e. Carlow, in the lease, are 1262–1265; and the document must have been executed within this period. We may date it as *circa* 1262.

William Fitz David appears again as a juryman at Ross in 1277.[4] For *Thomas Keting* see p. 93.

67.

Permission by Roger, son of Roger Beg, to the convent of Duiske to make a ditch between his land and the abbey lands, from Abernemukyn on the west to Castle Ford on the east; the ditch to be of twelve or six feet in width, as they wish.

Omnibus Christi fidelibus has literas uisuris uel audituris Rogerus filius Rogeri Beg eternam in domino salutem.

Nouerit uniuersitas uestra me diuine caritatis intuitu et sacrosancte religionis obtentu concessisse abbatie de Valle Sancti Saluatoris Cisterciensis ordinis eiusdemque loci conuentui facere unum fossatum super terram meam, sicut diuise extendunt se inter terram meam et terram predictorum abbatis et conuentus ab occidentali parte Abernemukyn usque ad Vadum Castelli uersus orientem, quod fossatum habebit duodecim pedes in latitudine; si uero placuerit prefatis abbati et conuentui facere fossatum sex pedum in latitudine et non amplius, terra fossati proiciatur super alios sex pedes terre quam eis dedi et concessi.

Habeant prefati terram prenominatam et possideant libere et quiete ab omni seculari exactione et demanda, et ego et heredes mei warantizabimus terram predictam contra omnes homines et omnes feminas.

In cuius rei testimonium et robur presens scriptum sigilli mei munimine roboraui.

We [illegible] anything more about *Roger Beg*.[5] From Charter 13 we learn that the heir of Alan Beg (see p. 11) was his daughter Cecilia, who married Wm. de Caunteton (p. 21). The Begs who appear in this deed were probably kinsfolk, and held land between the abbey and Gowran, as Alan Beg did. *Castle Ford* was presumably a ford of the river Barrow; *Abernemukyn* has not been identified.

We place the document here, assigning it to the years 1262–7; but there is no certainty about its period.

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[1] Pipe Rolls xlvi Hen. III and 1 Ed. I (35th Report D.K.R.I., p. 45, and 36th Report, p. 24; cf. C.D.I. ii, 843).

[2] See p. 91. [3] See Calendar of Pipe Rolls. [4] Hore's *New Ross*, p. 142.

[5] The name of "Roger Beg of Milleton" appears in 1305 in the *Cal. of Irish Justiciary Rolls* ii, p. 486.

In the Calendar of Patent Rolls 18 Feb., 1265, there is a note of "a Safe Conduct until Easter for Thomas, abbot of St. Saviour's in Ireland, and Master Thomas de Cheddeworth going to Ireland with their household and goods."

68.

Ordinance by Fulk, archbishop of Dublin, concerning the church of Dunmatathec, and the questions relating thereto at issue between Thomas, abbot of Duiske, with his convent, and Master Milo FitzRobert, canon of Leighlin: the church to be retained by the convent, Milo receiving 36 silver marks yearly for his life, to be paid to himself or to his accredited agent at the Grange of Donygne, and also the tithes of Balibyran; Milo to pay half a mark to the convent out of the said tithes, and to provide a chaplain for the chapel of Balibyran:

After Milo's death (as is contained in the instrument of the Bishop of Leighlin), or the death or resignation of abbot Thomas, the convent to provide a vicar for Balibyran:

If the 36 marks are not punctually paid, Milo may take over the church of Dunmatathec for his life.

Sealed by the archbishop of Dublin, the bishop of Leighlin, the abbot of Duiske, and Master Milo.

Dated at Clondalkin, 18 Jan. 1266.

Uniuersis Sancte Matris Ecclesie filiis presentis scripti continentiam inspecturis et audituris Ffulco miseratione diuina Dublinensis ecclesie minister humilis salutem in domino sempiternam.

Cum inter religiosum uirum dompnum Thomam abbatem et conuentum de Valle Sancti Saluatoris ordinis Cisterciensis actores ex una parte et magistrum Milonem filium Roberti canonicum Lechlinensem reum ex altera, super ecclesia de Dunmatathec et membris ad eandem spectantibus coram nobis auctoritate apostolica cognoscentibus exorta fuisset materia questionis, et diutius in presentia nostra agitata, demum partes, ut laboribus parcerent et expensis saniori contentes consilio, per liberam dicte ecclesie et membrorum in manus nostras factam a partibus resignationem, pure ac sponte super predicta causa inter eosdem suborta, hinc inde ordinationi nostre, iuramento eorum interposito utrimque ad eandem obseruandam, se per omnia et in omnibus submiserint.

Nos autem uirorum discretorum communicato consilio tractatuque diligenti et deliberatione perhibitis, inuocata Spiritus Sancti gratia, ordinando statuimus et statuendo ordinamus in hunc modum uidelicet: quod predicti abbas et conuentus prenominatam ecclesiam cum membris eiusdem in proprios usus retinebunt inperpetuum et obtinebunt, et libere ingrediantur cum sibi uiderint

expedire, per ordinationem et consignationem presentis scripti, ac de omnibus ordinariis et extraordinariis omnibus loci prelatis respondebunt; prenominatus uero magister Milo de dictis abbate et conuentu triginta sex marcas argenti nomine simplicis beneficii quoad uixerit recipiet sibi uel procuratori suo seu certo nuncio in Grangiam de Dunygne ad duos anni terminos soluendas et reddendas, uidelicet in festo Paschali octodecim marcas et in festo Sancti Michaelis octodecim marcas.

Volumus autem et ordinamus quod dictus magister quoad uixerit, decimas prouenientes de terra de Balliyran integraliter recipiet, reddendo inde annuatim nouem solidos dicti et conuentui singulis annis dimidium marcam ad duos anni terminos, uidelicet in festo Paschali quadraginta denarios et in festo beati Michaelis quadraginta denarios.

Et dictus M. capellc de Balliyran per capellanum ydoneum suo perpetuo faciet deseruire.

Ad hec uolumus et ordinamus quod supradicti abbas et conuentus loci diocesanus post obitum dicti Milonis, sicut continetur in instrumento Lechlinensis episcopi et capituli sui, necnon et post obitum aut cessionem abbatis qui nunc est, uicarium ydoneum presentabunt qui pro cura animarum ualeat respondere, ei congruam portionem eidem assignando, ita quod iura episcopalia ualeat soluere et cetera facere que uicariis incumbunt.

Volumus autem quod hec ordinatio nostra per impetrationes et supplicationes quorumcunque et a quocunque in uirtute huius inde prefati sacramenti quouismodo subtrahi uel infringi non debeat. Et si predicte triginta sex marce predicto M. eius heredibus non fuerint integraliter persolute, liceat eidem M. predictum conuentum cum bonis suis propria auctoritate ingredi et eadem [illegible] post eius uero decessum predicti abbas et conuentus predictam grangiam cum pertinentiis in usus proprios imperpetuum retinebunt cum onere tamen uicarii ut supradictum est.

Et ut huius rei perpetuam memoriam et firmitatem nos huic scripto alternatim diuiso et mutuis sigillis communito sigillum nostrum una cum sigillo uenerabilis fratris nostri Lechlinensi episcopi loci diocesani utrimque duximus apponendum. Valete in Domino.

Datum apud Clondolkan XV Kalend. Febr. anno domini MCC sexagesimo sexto.

Of the four seals attached to this instrument, two remain.

The church of [illegible], which is perhaps to be identified with Ullard; see p. 36, had been granted to the convent by Alan Beg (no. 13); and there had been several disputes about it (see pp. 36 and 75). Whether the "instrument of the bishop of Leighlin" referred to in this ordinance is that executed by *bishop Thomas* (1252–1275 — 1262 p. 96, [illegible]; at any rate the present arrangement

[1] In the Extracts from the Duiske Registers (L) this instrument is summarized thus: "1262. Thomas the bishop confirmed the rectory of Dowumteig to the abbey of Duysk, with the consent of Alan Beig."

seems to have ended the controversy. The archbishop of Dublin was *Fulk de Sandford* (1256–1271).

The *Grange of Dunygne* is probably the modern Doninga (p. 6 ; cf. pp. 158, 162).

Balibyran was apparently a chapel of ease to *Dunmatatheg*.

In this same year (10 March, 1266) we have a record of a legal agreement[1] about land being concluded at "Dowisky" by a certain Oliver le Gras.

69.

Cession by Thomas de Ballimor to the convent of Duiske, of the attachment of his millpond of Villa Batthe at a rent of two shillings to be paid annually to Theobald Pincerna, instead of the said Thomas, as heretofore.

Dated at Tullow, 22 Feb. 1273.

Omnibus ad quos hoc presens scriptum peruenerit Thomas de Ballimor salutem in domino.

Noueritis me concesisse pro me et heredibus meis quod abbas et conuentus de Dowisky habeant attachiamentum stangni molendini sui de Villa Batthe ; reddendo inde domino Theobaldo Pincerne singulis annis duos solidos sterlingorum ad duos annos terminos, uidelicet medietatem ad Pascham et aliam medietatem ad festum Sancti Michaelis, uidelicet illos duos solidos quos idem abbas et conuentus mihi et heredibus meis pro dicto attachiamento reddere debuerunt et consueuerunt.

In cuius rei testimonium presenti scripto sigillum meum apposui.

Datum apud Tholach xxii die Februarii anno regni regis Edwardi primo

Two seals have disappeared from this document.

Thomas de Ballimor (presumably Ballymore Eustace, co. Kildare) appears in 1306,[2] as receiving some compensation for the grant by John de Ballimor of the advowson of the church of Rathdonnell to St. Thomas' Abbey, Dublin.

Theobald Pincerna was Theobald Walter the Fourth, who died in 1285 (see p. 32).

Villa Batthe was probably not far from Tullow, co. Carlow (*tulach*, a hill), where the document was drawn up.

70.

Quit claim by Robert le Hore upon the lands of Gilkach, which the convent of Duiske holds in fee, notwithstanding a seisin of these lands which his father Hugh le Hore made to him ; on a penalty, should he attempt to dispossess the monks, to be enforced by the seneschal of Wexford for the time being, of twenty pounds sterling to be paid to the convent, and a jar of wine to the lord of Wexford.

[1] *Crede Mihi* (an ancient Register of the Archbishops of Dublin, ed. J. T. Gilbert, 1897), no. 98. [2] R.T.A. 423.

Omnibus Christi fidelibus has literas uisuris uel audituris Robertus Canutus filius Hugonis Canuti salutem eternam in domino.

Super seisina quam Hugo Canutus pater meus mihi fecit de Baligilkach quam dominus abbas et conuentus de Dowisky modo tenent in feudo, noueritis me in bona fide promisisse et tactis sacrosanctis euangeliis iurasse, et eciam tenore presenti me obligasse, quod si ego aliquando sinistro consilio ductus uellem dictos abbatem et conuentum inplacitare de dicta terra aliquo modo ratione predicte seisine soluam abbati et conuentui uingintí libras sterlingorum bone et legalis monete, antequam ego uel aliquis per me uel pro me opponendo uel respondendo in aliqua curia exaudiamur:

Ita quod senescallus de Weseforde qui pro tempore fuerit distringat me ad hoc faciendum et tenendum si necesse fuerit per omnia bona mea mobilia et immobilia ubicumque fuerint inuenta, et insuper pro predicta districtione facienda domino Weseford unum doleum uini.

In cuius rei testimonium presentibus literis sigilli nostri impressionem apponi fecimus.

Hiis testibus Hugone le Hore patre meo, Thadeo Ode, Mattheo Cnok, Waltero le Blak, Roberto Makarn, et aliis.

The grant of a carucate of land at Gilkach has already been set out in Charters 61 (about 1258) and 166 (between 1262 and 1265); and it is probable that the date of this instrument is not much later than the second of these. It may be about 1270.

For the situation of *Gilkach*, and for the *Hore* family, see p. 88.

Matthew de Cnok was also a witness to no. 61.

Walter le Blak may be of the same family as Nicholas le Blake, who was Provost of New Ross in 1289.[1] Walter Niger, who is possibly the same man, appears in an undated grant to St. Thomas' Abbey.[2]

In the year 1276 the old quarrel about the union of the abbey of Killenny with Duiske was revived, and the General Chapter of the Cistercian Order was persuaded to dissolve the union, which had been arranged fifty years before (see p. 43 ff.). Paragraph 28 of the Statutes of the General Chapter for 1276 is as follows:

"Auctoritate Capituli Generalis, de Buellio [Boyle], de Beatitudine [Bective], de Sancta [Ballyshannon], de Alio Tractu [Tracton], abbatibus districte precipimus quatenus locum ubi quondam abbatia de Valle Dei in Hibernia, filia Geripontis, fuerit situata, infra Purificationem B.V.M. proxime uenturam absque dilatione aliqua per se uel per alium accedentes inquirant diligenter et respiciant utrum terrae pertinentes ad abbatiam Vallis Dei possint secundum illius terrae statum competenter sufficere ad conuentum ibidem sustinendum.

[1] Hore's *New Ross*, p. 160. [2] R.T.A. 47.

[2] It is printed in Martene's *Thesaurus*, vol. iv, and is reproduced by Carrigan, iv, 286.

Quod si possint sufficere illas grangias et terras in abbatiam nomine Vallis Dei filiam Geripontis, cum rebus aedificiis ibidem inuentis redigant, cum ibi corpora multorum et magnorum principum et multorum aliorum sint sepulta, et abbas Geripontis ibidem conuentum mittere non retardet, et sit filia ipsius, prout definitum est quod tales abbatiae ad matres proprias revertantur. Si autem dictae terrae non sufficiunt ad conuentum ibidem sustinendum tunc dictae terrae ad dictam abbatiam Vallis Dei quondam pertinentes ad domum Geripontis tanquam ad matrem propriam cum aedificiis absque contradictione aliqua convertantur.

"Si abbas Sancti Saluatoris uel quicumque alius contrauenerit, uel si opposuerit, uel aliquo modo impedierit, uel per se uel per alium contradicere praesumpserit, praedicti quatuor abbates, uel duo eorum, si alii interesse nequiuerint, ipsum et alios contradicentes uel impedientes per suspensionis seu excommunicationis, uel si aliter non potuerint, per depositionis sententiam compellant auctoritate Capituli Generalis, conuentum similiter si contradictorem inuenerint interdicto et suspensioni supponentes, et quid super hoc fecerint per suas patentes litteras anno sequenti renuncient Capitulo Generali."

This decree was naturally resented by the convent of Duiske, who did not relish the prospect of handing over to the rival convent of Jerpoint lands that had been in their possession for half a century.

It would seem that the decree was resisted, for we find records in the extant Extracts from the Duiske Registers (E, F, L) as follows:

"1276. Interdict of the Monastery of St. Saviour imposed by the General Chapter"; and again,

"1278. Relaxation of the Interdict and Absolution of the Convent of St. Saviour."

As we shall see, the matter was ended for the time in 1278 (no. 73, infra); but the final abandonment on the part of Jerpoint of any claim on the lands of Killenny did not come until eighty years later.

71.

Quit claim by David, son of Stephen le Harpur, for the good of his soul, &c., touching the land in the holding of Coppenagh held by his grandfather Robert le Harpur, by consent of Raymond Roche, to whom David had ceded his claim in the said land for six and a half silver marks:

In accordance with this, David has handed a "Bref de Ael" to the convent of Duiske, at the Assize of Kilkenny, as well as quit-claiming to Raymond Roche.

Dated at Duiske, 18 Feb. 1278.

Uniuersis Christi fidelibus presentes literas uisuris uel audituris Dauid filius Stephani le Harpur salutem in domino sempiternam.

Nouerit uniuersitas uestra me pro animabus patris mee et matris mee nec non et pro salute anime mee et successorum meorum omne ius et clamium que habui uel aliquo tempore aliquo iure habere potui in tota terra quam quondam Robertus le Harpur auus meus in tenemento de Acopenach tenuit de consensu et uoluntate Reymundi de Rupe, cui ius et clamium quod in dicta terra habui pro sex marcis et dimidia argenti pro manibus uendidi receptis.

Et de qua quidem terra ego Dauid prenominatus breue, quod dicitur "Bref de Ael," super abbatem et conuentum de Dowisky in assisa Kilkennye portaui, dictis abbati et conuentui de Dowisky remisisse, et pro me et heredibus meis Reymundo de Rupe cui ius meum et clamium ut predictum est concessi presente existente et hoc uolente et iubente quietum clamasse inperpetuum.

Ita quod ego Dauid prenominatus in dicta terra aliquod ius uel clamium nec et heredes mei amodo exigere poterimus uel uendicare.

In cuius rei testimonium has literas meas in monasterio de Dowisky die Veneris proxima ante festum quod dicitur Cathedra Sancti Petri dictis abbati et conuentui anno domini MCCLXXVII feci patentes; presentibus Domino Geraldo de Rupe milite, et Reso Beket Juniore, nec non et de Rupe Reymundo, et aliis quam plurimis.

Of this [illegible] there is [illegible] in the Extracts from the Duiske Registers (E).

The *Harpurs* were a Gloucestershire family, who came to Ireland among the first Anglo-Norman adventurers; they built Harperstown Castle, near Taghmon, co. Wexford. John, son of *David le Harpur* (probably the grantor of this charter), is mentioned in a Wexford Inquisition of the year 1283.[1]

A "Bref de Ael" (aieul), or "writ of ancestor," is the form of writ necessary in cases when, as in the one before us, lands descend from a grandfather to his grandson.

Coppenagh Gap[2] is a pass in the hills to the west of Graigue, and to the north of the district between the Barrow and the Nore, known as "The Rower." Of this district the *Roches* were overlords.[3]

We have had the Roche family before.[4] Among the witnesses to the present instrument were the two sons of David Roche, viz., *Sir Gerald Roche* and *Raymond Roche*. This Gerald Roche seems to be of a younger generation than the man of that name who married Helen, daughter of Thomas Fitz Anthony.[5]

For *Ris Beket junior*, see p. 78.

[1] Hore's *Wexford*, p. 93; cf. p. 428.

[2] See p. 86. [3] See no. 98. [4] p. 76. [5] See p. 15.

72.

Quit claim by Raymond Roche, as attorney and assign of David, son of Stephen le Harpur, concerning the holding of Coppenagh [no. 71], to the convent of Duiske for six silver marks.

Dated at Duiske, 18 Feb. 1278.

Uniuersis Christi fidelibus presentes literas uisuris uel audituris Reymundus de Rupe salutem in domino sempiternam.

Noueritis me attornatum et assignatum Dauid filii Stephani le Harpur omne ius et clamium quod per prenominatum Dauid habui in terra, quamque quondam Robertus le Harpur in tenemento de Accopenach auus dicti Dauid, cuius heres ipse est ut dicitur, tenuit, domino abbati de Dowisky et eiusdem loci conuentui remisisse; et pro me et heredibus meis et assignatis pro sex marcis argenti quas ab eisdem abbate et conuentu recepi sicut pronominatus Dauid plenius in presentia mea et aliorum plurimorum eisdem abbati et conuentui remisit quietum clamasse in perpetuum:

Ita quod nec ego Reymundus prenominatus in dicta terra aliquo iure uel aliquo titulo seu ratione nec et heredes mei uel assignati amodo aliquid exigere poterimus uel uendicare.

In cuius rei testimonium has literas meas in monasterio de Dowisky die Veneris proxima ante festum quod dicitur Cathedra Sancti Petri dictis abbati et conuentui anno domini MCCLXXVII feci patentes.

Hiis testibus Domino Johanne et Geraldo de Rupe, militibus, et Reso Beket, iuniore, nec non Dauid le Harpur, et multis aliis.

Of the two seals originally attached to this instrument, only one remains. The deed was executed at the same time and place as no. 71, and it completes the transaction by which the convent got possession of the land in question.

One additional witness gives his name here, viz., *John Roche*, knight. He is of the same family as the other Roches, doubtless; and he may be the same person as a John de la Roche who appears at Kilkenny 8 June, 1291, "for having peace of the death of Nicholas Fitz Robert by Henry de la Roche, 77/6."[1] He appears again in 1285 and 1297;[2] and a *John Roche* was lay patron of the Rower parish about 1300.[3] See p. 111.

73.

Bond in £5000 by Gregory, abbot of Jerpoint, and his convent to the earl of Gloucester and his heirs, if at any time the convent or Philip, a monk thereof, who calls himself the abbot of Killenny, shall do anything by which the convent of Duiske shall be the losers; the bailiffs of the said earl to have £200 from the convent of Jerpoint in that event for putting the convent of Duiske in possession of the granges of Annamult and Bewley, and for enforcing payment of the bond.

Dated at Jerpoint, 9 Sept. 1278.

[1] Q.R. Irish Exchequer Bundle, 531, No. 22, m. 6.
[2] Hore's *Wexford*, pp. 94, 97. [3] Carrigan, iv, 124.

Uniuersis Christi fidelibus presentes literas uisuris uel audituris Frater Gregorius dictus abbas de Jeriponte et eiusdem loci conuentus salutem in Christo sempiternam.

Noueritis nos et successores nostros teneri ac tenore presentium obligari domino Comiti Glouuernie et heredibus suis in quinque mille libris sterlingorum nomine puri debiti sibi et heredibus suis uel eius certis attornatis has literas differentibus plenarie soluendis, si nos uel successores nostri seu frater Philippus monachus domus nostre de Joriponte, qui se gerit et nominat abbatem de Killenny, quod absit, impresenti uel imposterum in nostro generali capitulo uel in aliqua curia a quibuscumque personis ecclesiasticis uel secularibus aliquid impetrauimus retinuerimus seu usi fuerimus, per quod dilecti nobis in Christo abbas et conuentus Sancti Saluatoris super terris et possessionibus de Killenny cum pertinentiis suis amodo fuerint exacti.

Supponentes nos et successores nostros mobilia et immobilia nostra ubicumque fuerint inuenta districtioni domini Comitis Glouuernie et suorum ballinorum, qui pro tempore fuerint, qui nos ad solutionem quinque millium librarum dicto comiti faciendam, si predicti abbas et conuentus Sancti Saluatoris super predictis possessionibus per nos uel successores nostras uel per aliquas alias personas interpositas ut predictum est fuerint uexati, compellant; et nichilominus uolumus et concedimus et tenore presentium nos et successores nostros et communi consensu nostro et mera uoluntate obligamur, quod ballini dicti comitis qui pro tempore fuerint de bonis nostris habeant ducentas libras sterlingorum nomine puri debiti ad ponendum dictos abbatem et conuentum Sancti Saluatoris in ueram et perpetuam possessionem grangiarum de Adhemolt et de Bello Loco et ad compellendum nos et successores nostros super restitutione omnium . . . . . si quod fecerint dictis abbati et conuentui facienda, si per nos uel nostros ut supra dictum est fuerint uexati, et nichilominus prosecutione quinque millium librarum ut predictum est dicto comiti facienda, renunciantes super hiis omnibus ordinis nostri exceptioni[illegible] et omnibus priuilegiis nobis et ordini nostro concessis et omni iuris remedio tam canonici quam ciuilis, pro nobis et successoribus nostris imperpetuum.

In cuius rei testimonium has literas nostras fecimus patentes data et sigillata in nostra presentia communi et aliorum fide dignorum in capitulo nostro de Joriponte crastino Nativitatis beate Marie Virginis anno domini MCCLXX octauo.

The seal of the abbot of Jerpoint is still attached to this deed (see Plate II). The legend is ✠ SIGILL' ABBATIS DE JORIPONTE.

It would seem from the tenor of the deed that some compromise had been effected, and that Kilkenny was now in a quasi-independent condition, but not fully recognized as an abbey, even by Jerpoint, the mother house.

The *Earl of Gloucester* was Gilbert de Clare, the 8th earl, who died in 1295. His vast Irish estates were part of the Marshal property (see p. 32). He is spoken of as "the most powerful man in the kingdom, after the king."

Bowley (*Bouley*) is the same place as Owning, in co. Kilkenny, an ancient parish.

74.

Lease granted by Nicholas Abeinion to the convent of Duiske, of half of a burgage between his land on the north, and the abbey land on the south, with the adjacent croft in Newtown, near the abbey, for an annual rent of sixpence sterling to be paid half-yearly, and sixpence twice a year for all exactions and secular service; the convent having paid Nicholas half a mark in addition.

Sciant presentes et futuri quod ego Nicholaus Abeinion dedi et concessi et hac presenti carta mea confirmaui domino abbati de Dufusque et eiusdem loci conuentui unum dimidium burgagium cum crofto recto adiacenti in Noua Villa iuxta abbatiam de Dufusque, quod scilicet dimidium burgagium iacet inter terram dicti abbatis et conuentus ex parte australi et inter terram dicti Nicholai Abeinion ex parte aquilonali, habendum et tenendum dicto abbati et conuentui et successoribus suis de me et heredibus meis uel meis assignatis:

Reddendo inde annuatim . . . . . sex denarios esterlingorum ad duos anni terminos medietatem, uidelicet in termino festi Pasche et aliam medietatem in termino festi Sancti Michaelis, preterea reddendo mihi et heredibus meis uel meis assignatis sex denarios esterlingorum ad duos anni terminos, uidelicet medietatem in termino festi Pasche et aliam medietatem in festo beati Michaelis, pro omni exactione et demanda seculari et seruicio.

Pro hac autem donatione et concessione mea dederunt mihi predictus abbas et conuentus dimidiam marcham† esterlingorum in urgente necessitate mea, unde ego et heredes mei uel assignati predictum dimidium burgagium cum suis pertinentiis, prout . . . . ius predictum est, dictis abbati et conuentui contra omnes uolumus et tenemur warantizare.

Et ut presens concessio et confirmatio mea futuris temporibus robur firmitatis et stabilitatis optineant presens scriptum sigilli mei impressione roboraui.

Hiis testibus Ricardo le Marcheyl, Willelmo filio Dauid, Symone filio Dauid, Stephano Cementario, Henricho le Barbur, Waltero de Morgan, et multis aliis.

New Town near the Abbey is the town of Graigue.

Of Nicholas Abeinion we know nothing.

The executors of the will of "Richard le Mareschal of Thomastown" appear in 1305,[1] and he is probably to be identified with *Richard le Marcheyl* who is a witness to the lease. The great Richard Marshal, earl of Pembroke (p. 32), is not to be thought of here, for he was killed in 1234, having been but a short time in Ireland; and this instrument is probably 40 or 50 years later, as the names of the other witnesses show.

[1] *Cal. of Irish Justiciary Rolls*, ii, 157.

William and *Simon Fitz David* appear in no. 66 and again in no. 80. *Stephen de Mason*, *Henry le Barbur*, and *Walter le Marre* are joint witnesses to Charter 75 also.

We assign the lease to a date about 1280; but there is no way of fixing it precisely.

75.

Lease by Thomas the Mason, of Cunal, to the convent of Duiske, of half an acre in New Town near the Barrow, near Kylmohenenoth, between the land of William Fitz Simon on the south, and the King's Road to the mill on the north, at the rent of one silver halfpenny.

Sciant presentes et futuri quod ego Thomas Cementarius de Cunal dedi concessi et hac presenti carta mea confirmaui abbati et conuentui de Dowisky et eorum successoribus unam dimidiam acram terre cum pertinentiis suis in tenemento Noue Ville iuxta Barewam iacentem iuxta Kylmohenenoth, inter terram Willelmi filii Symonis ex una parte, et hoc uersus australem et Viam Regiam que iacet uersus molendinum, et hoc uersus aquilonem, et proextendit se in longitudine a Via Regia usque ad riuulum molendini, sicut mensurata est et perambulata per certas metas diuisas et bundas; habendam et tenendam dictis abbati et conuentui et eorum successoribus uel cuicumque dare legare tiendere inuadiare uel assignare uoluerint, de me heredibus uel assignatis meis in *feodo* et hereditarie libere et quiete integre plenarie et honorifice: in moris in pratis in pascuis et pasturis, cum omnibus libertatibus et liberis consuetudinibus ad dictam dimidiam acram terre cum pertinentiis spectantibus:

Reddendo inde annuatim prelicti abbas et conuentus uel eorum successores mihi heredibus uel assignatis meis unum obulum argenti ad quodlibet pascha pro omni seruicio seculari exactione et demanda ad me uel ad heredes meos pertinente.

Ego uero dictus Thomas et heredes uel assignati mei dictam dimidiam acram terre cum pertinentiis prelictis abbati et conuentui et eorum successoribus contra omnes homines . . . . . warantizabimus.

Ut autem hac mea donatio concessio et carta mee confirmatio futuris temporibus robur firmitatis ac stabilitatis optineant presentem cartam sigilli mei impressione duxi roborandam.

His testibus Waltero de Margan, Sthephano[4] Cementario, Andrea Tannur, Henrico le Barbur, Elya preposito Noue Ville, et multis aliis.

This deed must be of nearly the same date as no. 74, viz., 1280. Three witnesses appear in both, viz., *Walter de Morgan*, *Stephen the Mason*, and *Henry le Barbur*.

Cunal may stand for Connell, or Great Connell, near Sallins, co. Kildare, where an Augustinian priory was established.

New Town is Graigne, co. Kilkenny; and it is noteworthy that the town has now (in 1280) its own Provost, *Elias*. *Andrew Tannur* appears again in no. 76 as a burgess of Graigne.

76.

Lease by Henry, son and heir of Adam Tabernar, to the convent of Duiske, of a burgage in New Town, lying between the two highways, from their crossing to the highway from Idrone, and across to the Barrow, the rent of twelve pennies to be paid to the overlord at Easter and Michaelmas.

Sciant presentes et futuri quod ego Henricus filius et heres Ade Tabernar dedi concessi et hac presenti carta confirmaui Deo et beate Marie et monachis de Dowisky ibidem Deo seruientibus, pro animabus antecessorum meorum et successorum, unum burgagium cum pertinentiis in Noua Villa iuxta Barewe, illud uidelicet quod iacet inter duas regales uias et extendit se in longitudine a furcatione duarum predictarum uiarum usque ad regalem uiam que tendet de Odrone ex transuerso usque in Barewe, habendum et tenendum de me et heredibus meis et assignatis meis predictis monachis et eorum successoribus in liberam et puram et perpetuam elemosinam.

Ego uero dictus Henricus heredes uel assignati mei dictum burgagium cum pertinentiis predictis monachis et eorum successoribus warantizabimus in perpetuum:

Ita tamen quod sepedicti monachi soluant domino capitali duodecim denarios annui redditus ad duos anni terminos, uidelicet unam medietatem ad Pascham et aliam medietatem in termino festi beati Michaelis pro omni seruicio seculari exactione et demanda.

Ut autem hec mea donatio concessio ac presentis carta mee confirmatio futuris temporibus robur firmitatis et stabilitatis optineant presens scriptum sigigilli† mei impressione roboraui.

Hiis testibus Radulfo de Mosb . . ., Johanne Kempe burgensi de Rosponte, Ricardo de Sancto Florencio, Waltero Margan, Andrea Tannur, burgensibus predicte Noue Ville, et multis aliis.

Tabernar may be "le Taverner," from his calling.

The two highways must have been the roads from Graigue (*New Town*) to Inistioge and Thomastown respectively; and "the highway from Idrone" was that from Ullard to Graigue.

We have had already the witnesses *Walter Morgan* and *Andrew Tannur* (no. 75) who were burgesses of Graigue.

John Kempe, burgess of New Ross (Rosponte), appears again in civic records in the years 1281 and 1285.[1]

Richard de St. Florence we have had before (p. 85), and he appears again in charters dated in 1280 and 1289.[2]

This instrument must have been executed about the year 1280.

[1] Hore's *New Ross*, pp. 11, 153.

[2] A Richard de St. Florence appears as a juror at Castledermot in 1305 (*Cal. of Irish Justiciary Rolls*, ii, 463).

77.

Lease by Walter FitzHenry FitzWilliam de Mera to the convent of Duiske, of eight acres, both arable and pasture land, in the holding of Balimaclem in Oreythy, at a rent of three peppercorns ; in consideration for a fine paid by the convent.

Sciant presentes et futuri quod ego Walterus filius Henrici filii Willelmi de Mera uoluntate mea dedi et concessi et hac presenti carta mea confirmaui abbati et conuentui de Dowisky et eorum successoribus octo acras terre tam de terra arabili quam pastura iacentes pariter in tenemento de Balimaclem in Oreythy : habendum et tenendum predictas octo acras terre cum suis pertinentiis de me et heredibus meis uel assignatis predictis abbati et conuentui et eorum successoribus, libere quiete integre plenarie perpetue bene, et in pace iuris hereditarii, et eciam adeo libere sicuti aliqua terra dari potest uel incartari, cum omnibus libertatibus et liberis consuetudinibus dictam terram tangentibus :

Reddendo inde annuatim mihi et heredibus meis dicti abbas et conuentus tria grana piperis pro omni seruicio seculari auxilio tallagio wardio maritagio releuio eschaeta secta curie actione consuetudine et demanda que appellatur Unleldes.[1]

Pro hac autem donatione concessione et presentis carte mee confirmatione dederunt mihi predicti abbas et conuentus quandam summam pecunie prout melius inter nos concordatum est.

Ego uero dictus Walterus et heredes mei uel assignati predictas octo acras terre cum suis pertinentiis ut predictum est dictis abbati et conuentui et eorum successoribus contra omnes mortales imperpetuum warantizabimus et defendemus.

Insuper si quocumque casu fortuito principale tenementum, quod absit, uendere uel alienari me uel heredes meos seu assignatos contingat, pro omnibus quibuscumque oneribus predictas octo acras tangentibus principale tenementum absque ulla contradictione plenarie tenebitur respondere.

Ut autem hec mea donatio concessio et presentis carte confirmatio robur perpetue firmitatis optineat presentem cartam sigilli mei impressione duxi roborandam.

Hiis testibus Domino Reso Beket, Domino Roberto le Gras milite, Ricardo filio Stephani, Ricardo de Orunro, Johanne Strangbowe, et multis aliis.

Oreythy or Uirethe was a district in Idrone, west of the river Barrow.

Ris Beket, the first-named witness, seems to have lived in that neighbourhood (see p. 73). He appears in charters dated 1278 (nos. 71, 72), and perhaps we may assign this instrument to the year 1280 or thereabouts. It is not, however, certain that the man in question was not the earlier Ris Beket, in which case our charter would be earlier in date.

[1] I.e. 'inexcusable,' Anglo-Saxon *unlade*.

We know nothing of *Walter de Mera*, unless we are to equate him with Walter de Mora of Charter 48. The date at which the latter lived (see p. 75) would agree with the period to which we assign Charter 77.

For the family of *Le Gras* or *Crassus* see p. 16. A *Robert le Gras* was killed by the Irishry in 1345,[1] but this can hardly be the witness who appears here.

78.

Quit claim by Richard, son and heir of Alan de St. Florence, to the convent of Duiske, upon the holding of Athboly, in consideration of one silver mark.

Dated at Duiske, 19 June 1280.

Uniuersis Christi fidelibus presentes literas uisuris uel audituris Ricardus de Sancto Florencio filius et heres Alani de Sancto Florencio salutem in domino sempiternam.

Nouerit uniuersitas uestra me omne ius et clamium quod habui et aliquo iure habere potui in tenemento de Athboly uel ubicumque in tenemento domini abbatis de Dowisky uel eiusdem loci conuentus eisdem abbati et conuentui pro me et heredibus meis uel assignatis pro una marca argenti quam a dictis abbate et conuentu recepi remisisse et inperpetuum quietum clamasse. Ita quod nec ego nec heredes mei uel assignati in dicta terra de Athboly nec aliunde aliquo iure uel aliquo titulo seu ratione amodo aliquid exigere poterint (uel uen)dicare.

In cuius rei testimonium has literas meas sepedictis abbati et conuentui in monasterio de Dowisky feria quarta ante festum beati Johannis Baptiste quod dicitur Natiuitas anno domini MCCLXXX feci patentes.

For the situation of *Athboly* and the family of *St. Florence* see p. 85.

We have a memorandum mentioning the abbot of Duiske preserved under the year 1280;[2] viz., in a roll of payments made at Carlow we find: "From the abbot of Duiske fine for release of venue, 5 marks."

79.

Quit claim by John Fowler, son and heir of Luke Fowler, who was son and heir of Walter Fowler, to the convent of Duiske, concerning three carucates at Rathboghal which Richard de Marisco granted to the convent [no. 16]; on a fine of £100 if he ever attempts to re-establish his claim; the convent giving him six silver marks and one robe.

Omnibus ad quos presens scriptum peruenerit Johannes le Foueler filius et heres Luce le Foueler, qui quidem Lucas filius et heres fuerat Walteri le Foueler, salutem in domino sempiternam.

Noueritis uniuersitas uestra me remisisse et quietum clamasse pro me et heredibus uel assignatis meis in perpetuum abbati et conuentui de Valle

[1] Clyn's *Annals*. [2] C.D.I. ii, p. 361.

Sancti Saluatoris totum ius et clamium quod habui uel habere potui in terra que dicitur Rathbachelach, cum omnibus pertinentiis suis, et iacet pro tribus carucatis terre in Bentria quam quidem terram dominus Ricardus de Marisco miles dictis abbati et conuentui dedit et incartauit ;

Ita uidelicet quod ego nec aliquis heredum uel assignatorum meorum in dicta terra uel aliunde in tenemento dictorum abbatis et conuentus aliquid attemptare uel exigere de cetero poterimus.

Et si ita contigerit, quod absit, quod contra presentem quietam clamationem ego uel aliquis pro me et heredibus uel assignatis meis contra sepedictos abbatem et conuentum ratione dicte exactionis aliquid exigere uel attemptare presumperimus, uolumus et concedimus et tenore presenti nos obligamus ut sepedicte abbas et conuentus per omnia bona nostra mobilia et immobilia ubicumque fuerint inuenta per quoscumque uoluerint balliuos uel prelatos distringere possunt, ad solutionem centum librarum nomine puri debiti eisdem faciendam, si in predicta exactione aliquem nostrum perseuerare contigerit.

Pro hac autem quieta clamancia idem abbas et conuentus dederunt mihi in gersummam sex marcas argenti cum una roba.

Et ut processu temporis scriptum istud stabilitatem optineat ego illud sigilli mei munimine duxi corroborandum.

Hiis testibus Domino Hay Huscard milite, Willelmo Boscher, Johanne filio Willelmi Dauid Boscher, Thoma Mackudy, Th : Don, et multis aliis.

The seal is still attached to this instrument, and of the legend upon it the letters . . . OHS . . . OLLE . can be read.

We put this deed at 1282 or thereabouts.

For *Rathboghal* see p. 40.

Hay Huscard and *William Boscher* were charged in 1281 with felling trees in the woods of Roger Bigod, earl of Norfolk, in Bantry, co. Wexford.[1]

For *David Boscher* see p. 91.

In 1317 one *Thomas Don* or of Down, who is described as "fortissimus latro," was captured at sea, and beheaded ; but there is no certainty that he should be identified with *Th. Don*, the last witness to this charter.

Mackudy may be for *Mac Odo*.

80.

Grant by Henry FitzHenry Roche for the benefit of his soul and of that of Olive his wife, &c., to the convent of Duiske, of rights to fish in the Barrow from Polmuntath to Portegrenan.

Notum sit omnibus quod ego Henricus filius Henrici de Rupe dedi et concessi et hac presenti carta mea confirmaui, pro anima mea et Oliue uxoris mee et animabus patris et matris mee nec non et omnium parentum meorum predecessorum et successorum Deo et beate Marie et abbatie de Dowisky et monachis ibidem Deo seruientibus in flumine de Barwe quicquid ibidem habui libertatis ad piscandum a loco qui uocatur Polmuntach usque ad locum

[1] C.M.A. ii, lxxxiii. *Boscher* here is called "Vesher." [2] C.M.A. ii, 355.

qui uocatur Portegrenan, habendum et tenendum dictis monachis et eorum successoribus dictam piscationem prout plenius predictum et in perpetuum adeo libere et quiete sicut aliqua elemosina dari potest et incartari.

Ego uero et heredes mei dictam piscationem contra omnes warantizabimus. Et ne aliquid de cetero de dicta donatione hesitare debeant presentem cartam sigilli mei impressione duxi roborandum.

Hiis testibus Dominis Reso Begeth, Milone filio Dauid, Johanne de Rupe, Petro filio Johannis Canuti, Ricardo le Moyne, militibus, Eustachio de Rupe, Willelmo, et Symone filio Dauid, Johanne Osegoth, et aliis.

The seal is still attached to this instrument, which was confirmed in 1352 (see no. 98).

The *Roches* (see pp. 76, 102) were lords of the district known as the Rower, between the Nore and the Barrow; and their fishery rights were valuable to the convent. *Polmuntath* is the modern *Polmounty* on the Barrow, and *Portegrenan* is Thomastown on the Nore.

A *Henry Roche* appears in 1287;[1] and the same name has already been before us for the year 1291.[2] Probably he is to be identified with *Henry Fitz Henry Roche* who was lay patron of Listerlin about 1305,[3] and with the grantor of the instrument before us. For *John Roche* see p. 103. *Eustace Roche* appears in company with David Boscher (see p. 91, note) in deeds that must have been executed before 1305.[4]

We have already had *William Fitz David* and *Simon Fitz David*, in 1262–5 (no. 66) and about 1280 (no. 74). *Milo Fitz David* held land in Overk in 1246[5] (by the service of seven knights' fees, this being the largest fief in the lordship of Kilkenny). He appears again in 1286,[6] and died shortly afterwards.

For *Ris Beket* see p. 73.

For the family of *le Hore* or *Canutus* see p. 88. A Peter le Hore attested a charter given at London in 1192,[7] and he may have been an ancestor of *Peter Fitz John le Hore* who is a witness to the instrument before us.

Taking the names of all the witnesses together, we put this charter at the year 1285 or thereabouts, but do not profess to date it precisely.

81.

Lease by William de Cardiff, son and heir of Richard de Cardiff, to the convent of Duiske, of 39 acres of land near their farm at Coppenagh; bounded on the west by the land of William FitzAlured, on the south by the "little water" called Ath-Coppenagh, and on the north by the road leading to Dungarvan; part of the said land, called Maglasbeg, extending from the Ath-Coppenagh water to the water called Stronan; the rent to be a pair of gloves and a penny annually, and the convent paying the vendor £11 sterling.

Sciant presentes et futuri quod ego Willelmus de Kerdif, filius et heres

[1] Hore's *New Ross*, p. 37. [2] P. 160. [3] *Red Book of Ossory*, s. a.
[4] C.M.A. ii, 174-6. (Gilbert Sutton died in 1305.)
[5] C.M.A. ii, 406. [6] C.D.I. iii, p. 99. [7] C.M.A. i, 270.

Ricardi de Kerdif dedi concessi et hac presenti carta mea confirmaui abbati et conuentui de Valle Sancti Saluatoris triginta et nouem acras terre que jacent juxta terram grangie ipsorum monachorum de Athcopenach, sicut eisdem monachis mensurate sunt et perambulate per metas bundas et diuisas subsceptas; uidelicet in latitudine inter terram predictorum monachorum ex parte orientali et terram Willelmi filii Alunredi ex parte occidentali, et extendunt se in longitudine a parua aqua que est Athcopenagh ex parte australi, usque ad uiam que ducit ad Dungaruam ex parte boriali et quedam pars dicte terre extendit se de aqua que uocatur Athcopenach usque ad aquam que uocatur Stronan et uocatur illa pars terre Maeglasbeg:

Habendum et tenendum predictam terram cum suis pertinenciis predictis monachis et eoram successoribus in perpetuum de me et heredibus uel assignatis meis prout melius et liberius eam dare et incartare potui:

Reddendo inde annuatim predicti monachi et eorum successores mihi et heredibus uel assignatis meis unum par cyrothecarum uel unum denarium, in termino festi pasche pro omni seruicio exaccione, saluis secta curie et demanda seculari.

Et ego dictus Willelmus et heredes mei uel assignati mei pro predictis monachis eali . . . . . toribus respondere tenemur, ita quod predicti monachi sint quieti ex toto de omni sarcina reddituum et aliorum prouenientium.

Ego uero dictus Willelmus et heredes uel assignati mei dictis monachis et eorum successoribus dictam terram cum suis pertinentiis contra omnes mortales in perpetuum warantizabimus acquietabimus et defendemus.

Pro hac autem donatione concessione et presentis carte mee confirmatione dederunt mihi predicti monachi undecim libras esterlingorum pre manibus.

Ut autem hec mea donatio concessio et presentis carte mee confirmatio robur firmitatis et stabilitatis futuris temporibus optineat in perpetuum presentem cartam sigilli mei impressione duxi roborandum.

Hiis testibus Domino Galfrido Ossoriensi episcopo, Magistro Rogero archidiacono, Dominis Johanne de Valle, Philippo Maunsel, Reso Beket, Galfrido Ketyng, militibus, Johanne de Blancheuil, et multis aliis.

The seal remains, and we can still read upon it ✠ S. WILLI . D . CEARDIF.

The charter is mentioned in the Extracts from the Duiske Registers (FL).

We have met the *de Cardiff* family in the neighbourhood of Coppenagh before (no. 60). This *William de Cardiff* was son of *Richard de Cardiff* (see p. 73) who was son of Robert de Cardiff. A *William de Cardiff* appears in 1284 as having killed an "Irishman";[1] and, again, *William de Cardiff* was one of two persons appointed in 1302 by the abbot of Dunbrody to represent him in his absence.[2]

Dungarvan is to the north-west of Graigue or Duiske. *Maglasbeg* and *Stronan* have not been located, but the situation of the land transferred is not doubtful. *Fitz Alured* is a name that does not seem to occur again in this neighbourhood.

The first witness was *Geoffrey St. Leger*, bishop of Ossory from 1260 to 1287. *Roger de Leger* succeeded to the archdeaconry some time after 1264, and appears

[1] Hore's *New Ross*, p. 152. [2] C.M.A. ii, lxxxvi (quoting Patent Rolls, xxxi Ed. I).

in 1271 in Cotton's *Fasti*. Hence the deed before us must have been executed after 1264 and before 1286. We incline to place it at the end of this period, about 1285, but there is no definitive evidence of the year.

John de Valle belonged to the well-known family whom we have had before (see pp. 20, 30, 39). We see from Charter 94 that he was the son of Stephen de Valle who was the son of Alan de Valle, and that he was alive in 1305. He witnessed Roger Bigod's charter to New Ross in 1279.[1]

Philip Maunsel attested a Kells charter (unpublished) in 1264, and his son was lord of Knocktopher, co. Kilkenny, in 1312.[2]

For *Ris Beket* see p. 73; and for one of the *Ketings* p. 92.

The *Blanchevilles* of Blanchevillestown, near Gowran, co. Kilkenny, were a prominent family from the thirteenth century onward.[3]

82.

Quit claim, in form of letters patent, by William, son of Henry de St. Florence, to the convent of Duiske, respecting half a carucate of land in Makarne, twelve acres in Athboly, and half the pool of Cordredan, for three silver marks.

Dated at Duiske, 9 July, 1288.

Uniuersis Christi fidelibus presentes literas uisuris uel audituris Willelmus filius Henrici de Sancto Florentio salutem in domino sempiternam.

Nouerit uniuersitas uestra me omne ius et clamium quod habui uel aliquo iure habere potui in dimidia carucata terre cum pertinentiis in Mackarne et in duodecim acris cum pertinentiis in Athboli una cum dimidietate gurgitis de Kordredan uel ubicunque in tenemento domini abbatis de Dufwiski uel et eiusdem loci conuentus, eisdem abbati et conuentui, pro me et heredibus meis et assignatis, pro tribus marcis argenti quas a dictis abbate et conuentu recepi remisisse et in perpetuum quietum clamasse; ita quod nec ego nec heredes mei uel assignati in predicta dimidia carucata terre cum pertinentiis in Mackarne et in predictis duodecim acris terre in Athboli cum pertinentiis et reliqua in predicta dimidietate gurgitis de Kordradan nec aliunde aliquo iure uel aliquo titulo seu ratione amodo aliquid exigere uel uendicare poterimus in futurum.

In cuius rei testimonium has literas meas sepedictis abbati et conuentui fieri feci patentes.

Datum in monasterio de Dufwisky die Veneris proxima post octauas apostolorum Petri et Pauli anno domini millesimo ducentesimo octogesimo octauo.

For the *de Florence* family see p. 85. This *William Fitz Henry de St. Florence* was probably a cousin of Richard (who appears in nos. 59, 78, 87) and William (no. 83), the sons of Alan de St. Florence.

A Henry de St. Florence appears elsewhere in 1228.[4]

For *Athboly* see p. 85, and for *Cordredan* see p. 69.

[1] *Chartae*, &c., p. 85. [2] Carrigan, iv, 21. [3] See Carrigan, iii, 414. [4] C.D.I. i, 1635.

83.

Quit claim, in form of letters patent, by William the clerk, son and heir of Alan de St. Florence, respecting the lands and the pool described in no. 82.

Dated at Duiske, 9 July, 1288.

Uniuersis Christi fidelibus presentes literas uisuris uel audituris Willelmus de Sancto Florencio clericus filius et heres Alani de Sancto Florencio salutem in domino sempiternam.

Nouerit uniuersitas uestra me omne ius et clamium quod habui uel aliquo iure habere potui in dimidia carucata terre cum pertinentiis in Makarne et in duodecim acris cum pertinentiis in Athlody una cum dimidietate gurgitis de Kordredan uel ubicumque in tenemento domini abbatis de Dowisky uel nunc eiusdem loci conuentus, eisdem abbati et conuentui pro me et heredibus meis et assignatis, pro tribus marcis argenti quas a dictis abbati et conuentu recepi remisisse et inperpetuum quietum clamasse, ita quod nec ego nec heredes mei uel assignati in predicta dimidia carucata terre cum pertinentiis in Mackarne et in predictis duodecim acris terre cum pertinentiis et in predicta dimidietate gurgitis de Kordraden nec aliunde aliquo iure uel aliquo titulo seu ratione a modo aliquid exigere uel uendicare poterimus in futurum.

In cuius rei testimonium has literas meas sepedictis abbati et conuentui fieri feci patentes. Datum in monasterio de Dowisky die Veneris prima post octobas† apostolorum Petri et Pauli anno domini milessimo cc octogesimo octauo.

This *William de St. Florence* is apparently a brother of Richard whom we have had before [nos. 59, 78; cf. p. 85.]

84.

Petition from Peter, abbot of Jerpoint, and John, abbot of Duiske, to T. abbot of Citeaux, and the abbots of the four chief daughter houses, for a confirmation of the amicable arrangement reached, in presence of D. Archbishop of Cashel, between the convents of Jerpoint and Duiske; by which Killenny and the grange of Annamult are to belong for ever to Duiske, Duiske taking over the debts of Jerpoint to the amount of 1000 marks, and further undertaking to expend 300 marks in addition on the lands of Jerpoint.

Dated at Jerpoint, 10 July, 1288.

Reuerendis in Christo prioribus domino T. abbati Cisterciensi quatuorque primis abbatibus necnon et diffinitoribus in capitulo generali constitutis Fratres P. et J. de Jerpoynte et de Sancto Saluatore dicti abbates et eorum conuentus salutem in omni genere honoris et reuerencie.

Quam sit amica contemplationi pacis securitas et odiosa perturbatio, attendentes ex unanimi consensu et uoluntate nostra et conuentuum nostrorum super lite iam inter nos mota, de grangiis et possessionibus ab abbate et conuentu Sancti Saluatoris ablatis necnon et de iure abbatis et conuentus de Jeripont̃e super possessionibus de Killenny, in presencia domini D. archiepiscopi Cassellensis amicabiliter in pace quieuimus:

Ita uidelicet quod Killenny cum omnibus pertinenciis suis et grangia de Athnemolt cum omni iure suo abbati et conuentui de Sancto Saluatore in perpetuum remanebunt, abbas uero et conuentus de Sancto Saluatore predictos abbatem et conuentum de Jeripont̃e uersus diuersos creditores de omnibus debitis suis in quibus tenebantur ad estimationem mille marcarum acquietarunt, et nichilominus tres centas marcas ad restaurandum grangias et loca eorumdem pro ista quieta clamancia et perpetua pace seruanda dederunt; quam quidem pacem a uestre benigne paternitatis clemencia nomine nostro et conuentuum nostrorum sub testificatione sigilli capituli generalis humiliter et deuote petimus confirmari.

In cuius rei testimonium predicti abbates de Jeripont̃e et de Sancto Saluatore presenti scripto sigilla sua apposuerunt.

Datum apud Jeripontem die septem fratrum anno domini MCC octogesimo octauo.

Of the three seals, one is gone. On the seal of the abbot of Duiske (see Plate II) may still be read: SIGILL . ABBATIS . D[E . S. SALV]ATORE.

The name of the abbot of Citeaux was Theobald.[1]

This agreement was preceded by a Quit Claim on the part of Peter, the abbot of Jerpoint, of which we have only an inspeximus in no. 85.

The archbishop of Cashel who made peace between the convents was *David MacCaghwell* (1253–1289), who took a special interest in the Cistercian Order.

85.

Inspeximus by P., abbot of Dublin, H., abbot of Mellifont, and other abbots of the order, addressed to the abbots of Citeaux, la Ferté, Pontigny, Clairvaux, and Morimund, of the pacification made between the convents of Jerpoint and Duiske, viz., that Peter, the abbot of Jerpoint, and his convent abandon all claims upon Killenny or upon the grange of Annamult to the convent of Duiske, for 1300 marks sterling money, and bind themselves in 1000 marks accordingly.

Dated at Castle Dermot, 15 May, 1289.

Reuerendis patribus suis in Christo de Cistercio . . . de Firmitate . . . de Pontiniaco . . . de Clareualle . . . de Morimundo dictis abbatibus, fratres P. et H. de Dublin: et de Mellifonte abbates in Hybernia, nec non et ceteri

[1] *Gallia Christiana*, iv, 997.

abbates dicte terre quorum sigilla presentibus appendent salutem et deuotam ac paratam in omnibus subiectionem.

Noueritis nos formam pacis inter abbatem Jeripontis et eius conuentum et abbatem de Sancto Saluatore et eius conuentum, ad perpetuam releuationem ad diuersorum debitorum exonerationem domus Jeripontis et alterius domus de Sancto Saluatore tranquillitatem, licet in multis grauantur, in verba subscripta non abolitam non uitiatam, sub sigillo abbatis Jeripontis de consensu sui conuentus et sigillis quatuordecim abbatum testimonium ueritati perhibentium inspexisse:

"Uniuersis presentes literas uisuris uel audituris Frater Petrus dictus abbas de Jeriponte et eiusdem loci conuentus salutem in Domino.

Noueritis nos ex unanimi assensu nostro et uoluntate nostra et conuentus nostri remisisse et omnino in perpetuum quietum clamasse pro nobis et successoribus nostris abbati et conuentui de Sancto Saluatore et eiusdem loci conuentui et eorum successoribus totum ius et clameum quod habuimus uel aliquo tempore seu titulo habere poterimus in Kyllenny cum omnibus pertinentiis suis, una cum grangia de Athnemolt et pertinentiis suis; ita quod nec nos nec successores nostri nec aliquis pro nobis seu nomine nostro ius uel clameum inde uendicare poterimus infuturum, pro mille et trescentis marcis sterlingorum bonorum et legalium, quas dicti abbas et conuentus de Sancto Saluatore nobis soluerunt et dederunt in pecunia numerata; et si aliquid contra hoc attemptatum fuerit, quod absit, irritum sit et inane. Si uero contingat quod nos uel aliquis pro nobis contra istam nostram quietam clamationem recalcitrare presumpserimus uel presumpserit, subiicimus nos et omnia bona nostra iurisdictioni domini abbatis Cistercii qui pro tempore fuerit et quatuor primorum de Firmitate de Pontiniaco de Clareualle et de Morimundo abbatum qui pro tempore fuerint, quod ipsi percipiant de nobis et domo nostra nalie marcas sterlingorum nomine pure debiti ad istam compositionem obseruandam si nos uel aliquis pro nobis dictos abbatem et conuentum de Sancto Saluatore inquietare presumpserimus uel presumpserit, renunciantes in premissis pro nobis et conuentu nostro et successoribus nostris omnibus cauillationibus defensionibus+ priuilegiis impetratis et impetrandis et omnibus aliis literis et diffinitionibus capituli generalis ordinis Cisterciensis, que nobis uidelicet abbati et conuentui de Jeriponte qui pro tempore fuerit prodesse poterunt, et precipue abbati et conuentui de Sancto Saluatore et eorum successoribus in aliquibus obesse.

Et ne hec nobis uertatur in dubium presentibus literis sigilla nostra apposuimus."

Datum apud Tristeldermot Idibus Maii anno domini MCC octogesimo IX in presencia magistrorum Clarenallis qui hoc anno generationem Mellifontis uisitarunt.

Most of the abbatial seals have disappeared, but fragments of four still remain.

We have a note in the Extracts from the Duiske Registers (FL) of the instrument of which this is an Inspeximus. It was given at Tullaherin, co. Kilkenny,

by Peter, the abbot of Jerpoint, on 29 May, 1288, in the presence of the abbots of St. Mary's, Mellifont, Baltinglass, Bective, Monasterevan, Abbeyleix, Tintern, Dunbrody, Monaster Nenagh, Inislawnaght (Tipperary), Kilcooley, Holy Cross, and Cashel.

There was no Cistercian house at Castle Dermot (or Tristel Dermot, *Tristle Diarmada*, St. Dermot's Hermitage) in co. Kildare; but it was an important place in the thirteenth and fourteenth centuries, and conveniently situated for a conference of abbots from the various parts of Ireland.

"P., abbot of Dublin," was *Philip Troy*, abbot of St. Mary's, who died 1304; and "H., abbot of Mellifont," was *Hugh O'Hessan*, who resigned in 1300.

86.

Certificate to J., abbot of Clairvaux, from H., abbot of Mellifont, J., abbot of Fermoy, M., abbot of Kilcooley, and L., abbot of Cashel—summoned to Jerpoint by R. and G., monks of Clairvaux, who were visiting Ireland in order to inquire into the pacification between the convents of Jerpoint and Duiske—that the settlement transferring Killenny and the grange of Annamult to Duiske has been ratified, Duiske having paid Jerpoint 1000 marks, and undertaking to pay 310 marks more within five years; Jerpoint stating that without these moneys they could not meet their obligations.

Dated at Jerpoint, 23 May, 1289.

Reuerendo Patri in Christo Domino J. abbati Clareuallensi: Fratres H. de Mellifonte, J. de Castro Dei, M. de Aruicampo et L. de Rupe Casselensis dicti abbates salutem in domino sempiternam.

Nouerit uniuersitas uestra quod nos prefati abbates, uocati ad domum Jeripontis per fratres R. et G. monachos Clareuallenses ad Hyberniam uisitandi gratia destinatos pro inquisitione facienda super compositione facta inter abbatem et conuentum Sancti Saluatoris ex una parte et abbatem et conuentum de Jeriponte ex altera, pro grangia de Athmemolth et terris et possessionibus de Killenny cum suis pertinentiis, audiuimus a prefatis abbate et conuentu Jeripontis quod ipsi receperant a predictis abbate et conuentu Sancti Saluatoris pro compositione facta inter ipsos et resignatione predictorum possessionum mille marcas in pecunia numerata; et predicti abbas et conuentus de Sancto Saluatore adhuc tenebantur soluere prefatis abbati et conuentui de Jeriponte trecentas et decem marcas sterlingorum pro compositione supradicta, quas predictus abbas et conuentus de Sancto Saluatore tenentur eisdem soluere diuersis terminis infra quinque annos de quibus inter ipsos littere sunt confecte.

Dicti uero abbas et conuentus Jeripontis dictam compositionem coram nobis ratificauerunt et in pleno capitulo sollempnizarunt, asserentes quod ne dicta compositio inter ipsos fuisset facta, ceteras possessiones suas compellerentur uendere uel perpetue paupertati subiacere.

In cuius rei testimonium presenti scripto sigilla nostra apponi fecimus.

Datum in domo Jeripontis die Sancti Desiderii episcopi et martiris anno domini MCC octogesimo nono.

There are two original copies of this instrument extant. Of the four seals only portions remain, but to one copy is attached a good impression of the seal of the abbot of the Rock of Cashel (see Plate II).

For *H., abbot of Mellifont*, see p. 117. The name of the abbot of Clairvaux was *John*.[1]

The monastery *de Castro Dei* was Fermoy, co. Cork; *de Arvicampo* was Kilcooley, co. Tipperary; and *de Rupe Casselensis* was Hore Abbey, of the Rock of Cashel, in the same county.

The details of the debts of Jerpoint, which were to be discharged by these moneys paid by the convent of Duiske, are set out in no. 88.

87.

Acknowledgment by Richard de St. Florence and William his brother that they have received from the abbot and convent of Duiske a box containing muniments which had been in the custody of the said convent.

Dated 25 July, 1289.

Uniuersis Christi fidelibus presentes literas uisuris uel audituris Ricardus de Sancto Florencio et Willelmus frater eius salutem eternam in domino.

Nouerit uniuersitas uestra nos a dilectis nobis in Christo abbate et conuentu de Sancto Saluatore pixidem cum munimentis nostris die Sancti Jacobi apostoli uidelicet anno domini MCC octogessimo nono recepisse, que quidem munimenta fuerunt in custodia predictorum abbatis et conuentus.

In cuius rei testimonium presenti scripto sigilla nostra apposuimus.

This is the sequel of the transactions set out in nos. 82, 83.

Presumably *Richard de St. Florence* and *William* his brother were the sons of Alan de St. Florence (see pp. 85, 113), but this is not quite certain.

88.

Indenture between Peter, abbot of Jerpoint, and John, abbot of Duiske, giving the details of the payments made by Duiske on behalf of Jerpoint, in accordance with their recent agreement [nos. 84, 85, 86], in 1288 and 1289, viz.:

To Adam Blund of Callan, 120 marks;

To Walter de la Hay, King's escheator, and other creditors of Thomastown, 80 marks;

To Borimcinus and Bonifacius, merchants, 40 marks;

To Leonard Teste, a merchant of Lucca, 30 marks;

[1] *Gallia Christiana*, iv, 808.

To Robert Serman, burgess of New Ross, 20 marks;
To the abbey of St. Mary's, Dublin, 20 marks;
To the convent of Jerpoint, for redeeming their lands, 60 marks;
Also, Duiske exonerated Jerpoint in regard to certain sums, viz.:
520 marks due to Bendinus Pannyth and his firm, merchants of Lucca;
120 marks due to the same firm for 8 sacks of wool;
And 290 marks paid for redemption of lands in the hands of secular persons, viz., Elias de Hipstone and Master Richard de Blancheville.

Omnibus has litteras uisuris uel audituris Fratres Petrus et Johannes de Jeriponte et Sancto Saluatore dicti abbates et eorum conuentus salutem in domino.

Nouerit uniuersitas uestra quod abbas et conuentus de Sancto Saluatore abbati et conuentui de Jeriponte et suis creditoribus ad releuamen et maximam domus Jeripontis utilitatem pro compositione inter eosdem facta omnes pecunie summas inferius notatas, de quibus summis nos de Jeriponte in bona conscientia protestamur in parte bene esse paccatos† et in alia parte uersus diuersos creditores totaliter esse exoneratos.

Solutiones uero sunt iste:

In primis, Ade Blundo de Callan centum et uiginti marcas. Item Domino Waltero de la Hay Escaetori domini Regis Anglie in Hibernia et aliis creditoribus de Villa Thomae quatuor uiginti marcas. Item Borimcino et Bonefacio mercatoribus quadraginta marcas. Item Leonardo Teste ciui et mercatori de Luky triginta marcas. Item Roberto Serman burgensi de Nouo Rosponte uiginti marcas. Item domino abbati et conuentui domus Sancte Marie iuxta Dublin uiginti marcas. Item nobis ipsis de Jeriponte pro terris nostris redimendis sexaginta marcas. Iste sunt solutiones pro nobis facte anno domini MCC octagesimo octauo et anno domini MCC octogesimo nono.

Exonerationes uero sunt iste:

In primis erga Bendinum Pannyth et socios suos ciues et mercatores de Luky, quorum acquietancias penes nos habemus de quingentis et uiginti marcis sterlingorum. Item erga eosdem de octo grossis saccis bone lane, pretium cuiuslibet sacci quindecim marcas, summa omnium saccorum centum et uiginti marcas. Item pro redemptione terrarum in manibus secularium, uidelicet Elye de Hipstone et magistri Ricardi de Blancauille, ducentas quater uiginti et decem marcas.

Unde nos dicti abbas et conuentus de Jeriponte, ut omnis scrupulus de medio tollatur et occasio malignorum precludatur, fatemur et protestamur, non causa lenitatis sed causa per maxime utilitatis nobis et domui nostre de Jeriponte inperpetuum profuture, supradictas solutiones et exonerationes a dilectis nobis in Christo abbate et conuentu de Sancto Saluatore totaliter et fideliter recepisse annis quibus supra.

In cuius rei testimonium huic scripto in modum cyrographi inter nos confecto sigilla nostra alternatim apponi fecimus.

A small piece of the seal is left. The deed must be of the year 1289.

It is plain that Jerpoint had got into financial difficulties of a serious nature, and it is also plain that Duiske was uneasy about its tenure of the lands of Killenny, or it would not have paid so large a sum as 1300 marks for the benefit of a rival house.

Adam Blund of Callan, the first-named creditor, was the second of the four husbands of Dame Alice Kyteler, who was accused of witchcraft by Bishop de Ledrede of Ossory in 1324, and narrowly escaped being burnt as a witch.[1] His son was Prebendary of Kilmanagh in 1303.[2] In later times the family called themselves "White" = *Le Blond*.

Walter de la Haye, the King's escheator, appears as an itinerant judge in 1291,[3] and also in 1306.[4]

Robert Serman appears as a trader at Ross in 1287.[5]

The *merchants of Lucca*, who appear as creditors, were some of the many Italian financial agents or bankers who carried on business in Ireland during the thirteenth and fourteenth centuries. That Jerpoint had dealings in wool is quite natural, as the wool trade was largely in the hands of the Cistercian order, who depended upon sheep farming rather than upon agriculture. See p. 124.

For the *Blanchevilles* see p. 113; *Richard de Blancheville* appears again in 1312.[6]

89.

Confirmation by Theobald, abbot of Citeaux, and John, abbot of Clairvaux, on behalf of the General Chapter of the Cistercian Order, of the agreement reached by the convents of Jerpoint and Duiske in 1289 [nos. 84, 85, 86].

Dated at Citeaux, 1289.

Uniuersis Christi fidelibus presentes literas uisuris uel audituris Fratres Theobaldus et Johannes de Cystercio et de Claraualle abbates salutem in domino sempiternam.

Quoniam sit amica contemplationi pacis securitas et odiosa perturbatio, attendentes ex unanimi consensu et uoluntate abbatis et conuentus Jeripontis et abbatis et conuentus de Sancto Saluatore, super lite iam inter eos mota in forma pacis amicabilis sicut patet per eorum scripta quieuerunt:

Nos igitur quorum interest in hac parte, ut omnis scrupulus tollatur in posterum et precludatur occasio malignorum, unanimi consilio diffinitorum capituli generalis predictam pacis formam inter eos factam anno domini MCC octogesimo nono firmiter tenore presenti approbamus et autoritate nostra et totius capituli generalis confirmamus. Insuper uniuersis tam abbatibus quam monachis et conuersis undecumque fuerint perpetuum imponimus silencium, ne aliquo tempore contra prefatam pacis formam aliquatenus

[1] See *Proceedings against Dame Alice Kyteler* (Camden Society, 1843), p. 61.
[2] Carrigan, i, 252. [3] C.M.A. i, 2.
[4] Hore's *New Ross*, p. 167, and *Tintern*, p. 222.
[5] Hore's *New Ross*, p. 159. [6] Carrigan, iii, 414.

reclamare uel ipsam quomodolibet audeant perturbare, decernentes irritum et inane quicquid in contrarium impetratum uel quomodocumque fuerit attemptatum.

In cuius rei testimonium presentibus literis sigilla nostra apposuimus.

Datum apud Cistercium tempore capituli generalis anno quo supra.

Of the two seals of the abbots, only a fragment of one is left.

90.

Bond executed by Thomas, abbot of Jerpoint, and his convent for £10,000 sterling, that they will not disturb the convent of Duiske in the possession of Killenny or the grange of Annamult, in consideration of which Duiske has paid 1300 marks; and also for £1000 in florins to be paid to the funds of the Cistercian Order at Citeaux, £100 to each of the four principal abbots, and £1000 to the pope, in case of such disturbance.

Dated at Dublin, 6 Dec. 1290.

Uniuersis ad quos litere presentes peruenerint Frater Thomas dictus abbas de Jeriponte et eiusdem loci conuentus salutem in domino.

Cum abbas et conuentus de Sancto Saluatore de Dowisky nobis et predecessoribus nostris ad utilitatem domus nostre de mille et trecentis marcis bonorum et fidelium sterlingorum in certo numero computatorum fideliter et integre nuper satisfecissent, de quibus per presentes acquietancias nostras plenarie nobis et domui nostre predicte satisfactum fuisse confitemur, pro redemptione Grangie sue de Athnemolt et quieta clamancia ac remissione de Kyllenny, cum omni iure suo quod umquam ad nos uel domum nostram predictam quouis titulo pertinuit uel pertinere potuit seu debuit, sicut alia instrumenta inde confecta plenius testantur:

Nos uero timentes ne super premissis terris uel tenementis seu aliqua earum parte uel aliquo alio iure ad nos uel domum nostram pertinente de cetero poterit questio lis uel contentionis materia per nos uel quemcumque successorum nostrorum oriri, unde predicti abbas et conuentus de Sancto Saluatore uel eorum successores inplacitari poterunt, grauari, seu in aliquo molestari: Ideo obligamus nos per presentes, et successores nostros et omnia bona nostra mobilia et immobilia ecclesiastica et temporalia ad quorumcumque manus deuenerint, teneri, predictis abbati et conuentui de Sancto Saluatore et eorum successoribus in decem milibus libris sterlingorum nomine puri debiti, si nos uel quiuis successorum nostrorum predictos abbatem et conuentum de Sancto Saluatore aut eorum successores in aliqua re magna uel quantumcumque parua de cetero umquam inplacitauerimus in quacumque curia ecclesiastica uel seculari grauerimus uel disturbauerimus, de hiis que ad monasterium Vallis Dei que uulgo Kyllenny appellatur uel predicta grangia de Athnemolt aut aliqua earumdem portiuncula quantumcumque parua uel

aliquo alio iure que ad nos uel domum nostram de Jeriponte umquam pertinuit uel pertinere potuit. quocumque nomine ius illud censeatur in presenti uel cenceri poterit in futuro:

Ita quod in nulla curia ecclesiastica uel seculari nec etiam in nostro capitulo generali uel alio quocumque capitulo admitti nolumus sicut nec debemus ad implacitandum grauandum uel in aliqua re quantumcumque parua disturbandum eosdem abbatem et conuentum uel eorum successores: si, quod absit, ad hec faciendum de cetero nos uel quiuis successorum nostrorum quocumque titulo uel iuris colore aliquo modo presumpserimus quoad usque infra mensem a primo die litis mote uel contencionis in quacumque curia uel capitulo ut predictum est de predictis decem milibus libris integre et plenarie et uno die per nos fuerit satisfactum eisdem: nolumus igitur et tenore presentium nos obligamus teneri domino abbati Cistercii. si contra premissa uel aliqua premissorum umquam uenerimus. in mille libris florinorum in subsidium operis Cistercii:

Et cuilibet quatuor primorum abbatum in centum libris florinorum nomine pari debiti infra mensem a die litis mote soluendorum ita quod aliter non admittamur ad agendum;

Et hac lege pro supra obligamus igitur nos domino Summo Pontifici in mille libris florinorum lege qua supra in subsidium Terre Sancte soluendorum si contra premissa uel aliqua premissorum aliquid attemptauerimus. Renunciamus insuper in premissis et quolibet premissorum omni iuris remedio ecclesiastici et ciuilis et omni priuilegio impetrato uel impetrando et omnibus aliis et singulis que nobis prodesse poterunt et illis obesse a die confectionis presentium et cetera, literas autem omnes et singulas que penes nos manent per quas ius eorum poterit in futuro et nobis actio competere irritas esse censemus per presentes et nanes, nullumque existere momenti uel uigoris.

In cuius rei testimonium presentibus literis sigillum nostrum apponi fecimus.

Datum apud Dublin. in festo Sancti Nicholai anno domini MCC nonogesimo.

Of this document there are two original sealed copies. The seal of abbot Thomas of Jerpoint (see Plate II) remains attached to one of them: the legend is: (SI)GILL' ABBATIS DE IERIPON(TE).

The abbot of Duiske was now an important and conspicuous person. There is an instructive entry in the Patent Rolls for April 29, 1291: 'Letters of attorney for 3 years in Ireland under the names of brother John, [illegible] Dunsaghlin, Elias de Ibbeston, for Gilbert de Clare, earl of Gloucester and Hertford, and Joan his wife.' This Elias de Ibbeston, or Hipston, is probably the man we have met with in no. 88.

[1] C.D.I. iii, 882.

91.

Lease of a messuage and six acres in the holding of Coolmacsamny in Offathe, for 40 years, granted by Matthew le Bruce and Margery his wife to the convent of Duiske; the convent to provide a monk to celebrate divine offices in the chapel for their souls, and to pay a certain sum to the lessees who are in need of money.

2 Feb. 1297.

Hec est conuentio facta inter abbatem et conuentum Sancti Saluatoris de Dowisky ex una parte et Matheum le Bruce ex altera et Margeriam uxorem eiusdem:

Videlicet quod iidem Matheus et Margeria diniserunt ad firmam predictis abbati et conuentui unum mesuagium et sex acras terre cum pertinentiis suis in tenemento suo de Coulmacsaury† in Offathe ad terminum quadraginta annorum pro quadam summa pecunie predictis Matheo et Margerie in urgenti necessitate sua tradita . . . . . in festo Purificationis beate Virginis anno domini MCC nonogesimo sexto et durante usque ad finem . . . . . quadraginta annorum proximo sequentium plenarie completorum; habendum et tenendum de predictis Matheo . . . . . assignatis predictis abbati et conuentui predictum mesuagium et sex acras terre . . . . . iure suo libēre bene et in pace sine alicuius contradictionis obstaculo:

ita quod predicti abbas et conuentus . . . . . et Margerie annuatim in duabus robis quoad uixerint suo termino durante . . . . . predicte . . . . . heredes et assignati tenentur warantizare defendere et acquitare predictum terminum predictis abbati et conuentui contra omnes homines et feminas.

Et predicti abbas et conuentus inueniant unum monachum ydoneum in dicta capella ad celebrandum diuina . . . . pro animabus nostris et omnium fidelium defunctorum. In cuius rei testimonium presenti scripto in modum cyrographi confecto part . . . . . sigilla sua apposuerunt.

Hiis testibus Domino P. le Tyler decano cathedrali Watyrford, Domino J. le Syrl . . . . . archidiacono eiusdem loci, Domino J. le Poer milite, Petro et Ricardo filiis nostris, et multis aliis.

Sir Robert le Poer, who was marshal of Henry II, was given a large part of co. Waterford at the end of the twelfth century, and *Coolmacsamny* in *Offathe* was an estate of the le Poers. *Sir J. le Poer*, who appears as a witness to this deed, may be the knight of that name who was the fourth husband of Dame Alice Kyteler (see p. 120) in 1324. He was sheriff of Waterford in 1304.[1] Or, perhaps, he is to be identified with Sir John de la Poer, a monk of Duiske, who was assassinated in 1316.[2]

[1] See *Proceedings against Dame Alice Kyteler* (Camden Society, 1843), p. 49.

[2] See p. 133.

Matthew le Bruce, who granted this lease, appears at Waterford in 1266.[1] Perhaps his son *Richard*, who is a witness, was the *Richard de Brus* who attested a charter of Edward II to Maynooth, granted at Canterbury in 1321.[2]

P. le Tyler, the dean, and *J. le Syrl*, the archdeacon of Waterford (if that be his name), do not seem to be otherwise known. They are not noted in Cotton's *Fasti*.

The abbey of Duiske appears in 1297 in the Justiciary Rolls.[3] In that year the abbey of Holy Cross and its tenements were delivered to the abbot of Duiske to keep, by the Justiciar of Ireland, until otherwise ordered.

92.

Acknowledgment by the convent of Duiske of debts due to Gerard Chimbardi of Dublin and his firm, the Ricardi of Lucca, of £466 13*s.* 4*d.*; viz., £66 13*s.* 4*d.* at call, and the remainder in four years, £100 in wool annually; this to be in addition to 12 small sacks of wool which the convent is bound to pay within six years as set out in a former agreement.

Dated at Dublin, 6 May, 1299.

Uniuersis ad quos presens scriptum peruenerit abbas domus de Sancto Saluatore que uocatur Dowisky et eiusdem loci conuentus salutem in domino.

Noueritis nos sexto die Maii anno domini MCC nonogesimo nono computasse cum Gerardo Chimbardi apud Dublin et sociis suis mercatoribus de societate Ricardorum de Luky, tam de denariis per diuersas uices per ipsos mercatores nobis mutuatis, quam de lanis nostris per eosdem uel suos attornatos de nobis receptis, et item de arreragiis lanarum in quibus eisdem tenebamur de terminis preteritis necnon et de bladis[4] nostris tam domino regi quam ipsis mercatoribus liberatis et quibuscunque aliis debitis omniscunque generis uel conuentionis in quibus prefatis mercatoribus tenebamur quoque in annum et diem confectionis presen . . . . . predictum est; exceptis de duodecim parvis saccis lane nostre proprie addubiate in quibus tenemur prefatis mercatoribus per dictam literam nostram obligatoriam ad soluendam infra sex annos sicut in litera illa plenius continetur:

Inuenit preter predictos duodecim parvos saccos lane nostre addubiate contineri nos teneri prefatis mercatoribus in quadringentis sexaginta et sex libris tres decem solidis et quatuor denariis sterlingorum de puro et claro debito, de quibus tenemur soluere predictis mercatoribus sexaginta et sex libras et tres decem solidos et quatuor denarias ad ipsorum uoluntatem, et residuas quadringentas libras allocabimus eisdem mercatoribus in lanis nostris ex liberacionis ad quatuor terminos subscriptos, uidelicet centum libras ad festum sancte Marie Magdalene anno supradicto et siquid residuum lane

[1] Hore's *New Ross*, p. 137.
[2] *Chartae*, &c., p. 52.
[3] *Cal. of Justiciary Rolls (Ireland)*, i, p. 136.
[4] I.e. 'crops,' from *bladum*.

fuerit matricis agnine pelline aut lokys[1] tenebuntur dicti mercatores uel unus eorum qui lanam recipiet nobis satisfacere in pecunia numerata in reparatione lane eiusdem secundum formam et conditionem lane, prout continetur in magna litera de termino sexdecem annorum prius inter nos confecta, et sicut de anno in annum et termino in terminum durante terminis quatuor annorum.

Et tenemur soluere eisdem centum libras ad festum beate Marie Magdalene anno domini MCCC in lana nostra quam eodem anno recipient, et centum libras ad idem festum anno domini MCCC primo quam recipient in lana nostra anno eodem, et centum libras ad idem festum anno domini MCCC secundo in lana nostra quam eodem anno recipient.

Et si contingat nos aliquo anno predicto lanas de propriis bidentibus nostris non habere ad ualenciam centum librarum, tunc quantum defecerit de lanis illis non ua ..... illam summam centum librarum quocunque anno predicto tenere eisdem mercatoribus au tuni eorum in pecunia satisfacere secundum uendicationem lane magne litere inter nos confecte. In eodem festo beate Marie Magdalene in quo talis defectus nobis contigerit ad ..... omnia fideliter obseruanda obligamur nos successores nostros et omnia bona nostra mobilia et immobilia ecclesiastica et temporalia ad quorumcumque nobis decreuerint ..... scaccarii Dublinensis sub pena eiusdem scaccarii et districtioni cuiuscumque alterius iudicis ecclesiastici uel secularis, quos uel quem unus eorum mercatorum duxerit eligendum tam ad dictas solutiones seu allocaciones faciendas, quam ad restituendum predictis mercatoribus omnia dampna sua et expensas que uel quas incurrerint seu fecerint pro defectu earundem super quibus dampnis et expensis secundum considerationem fidedignorum eisdem satisfiet.

In cuius rei testimonium sigillum nostrum presenti scripto apposuimus.

Datum Dublin: sexto die Maii anno domini MCC nonogesimo nono.

Of the two seals formerly attached to this instrument, one is lost.

The *Ricardi of Lucca* were a firm of Italian bankers, trading in Ireland, who bought wool from the convent (see p. 120). They had banking houses in Dublin, Kilkenny, Ross, Waterford, and other places.

"*Gerard Chimbard* and his associates, collectors of the issues of the new Custom on wool, hides, &c.," appear at Wexford in 1296.[2] We find *Gerard Chimbard* also in a deed of Christ Church, Dublin (no. 164), about the year 1301.

During the period which we have reached, King Edward I was engaged in war with Scotland, and it became necessary for him to get men and money to prosecute his campaigns.

In the Patent Rolls, we find under the date 17 Jan., 1300, "Royal letters of credence for John Wogan, justiciary of Ireland, expounding the King's need of aid from the spirituality of Dublin," addressed to various ecclesiastics, and among others to the abbot of Duiske.[3]

[1] *Lokka* = a lock of wool. [2] Hore's *Wexford*, p. 97. [3] C.D.I. iv, 718.

On April 1 of the same year (1300), "the King notifies the Treasurer and Barons of the Exchequer at Dublin that he grants to the abbot of Duiske that of the debts in which the abbot is bound to that Exchequer on account of the Ricardi of Lucca, he may pay during pleasure at that Exchequer £100 a year, half at Michaelmas, the other half at Easter."[1]

The sequel is set out and fully explained in the document next in date among the Duiske papers.

93.

Letters patent of King Edward I. viz.: Whereas by former letters patent the King granted to his commissioners Geoffrey de Geneville, John Wogan, justiciar, Richard de Bereford, treasurer of the exchequer at Dublin, Roger de Ingepeime, Walter Wogan, and Master John de Okle, to remit to crown debtors two-thirds of their debts, provided that for the remaining one-third they come with horses and arms to Scotland for the war, and that the same be expended in wages, etc., according to the number of men brought and the time they stay in the King's service; and whereas the convent of Duiske owes the firm of the Ricardi of Lucca £342 17*s.* 3*d.*, to be paid within 4 years, as of record in the Exchequer Rolls, and the Ricardi are bound to the King in a large amount, it is ordered: That in consideration of £114 5*s.* 9*d.*, now paid by the convent to John Deneger for the wages of 6 men-at-arms and horses, 12 hobelarii,[2] and 62 footmen for the war as above, the whole of their debt to the aforesaid merchants shall be extinguished.

Dublin, 25 June, 1301.

Edwardus dei gratia Rex Anglie Dominus Hibernie et Dux Aquitanie omnibus ad quos presentes litere peruenerint salutem.

Cum nuper per literas nostras patentes sub magno sigillo nostro commisissemus dilectis et fidelibus nostris Galfrido de Geneuille, Johanni Wogan Justiciario nostro Hibernie, Ricardo de Bereford Thesaurario scaccarii nostri Dublin. Rogero de Ingepeime Waltero Wogan et Magistro Johanni de Okle, [illegible] potestatem ad remittendum et perdonandum [illegible] de Hibernia qui debita nobis debent et qui ad nos cum equis et armis ad partes Scotie in guerre nostre subsidium sunt uenturi, duas partes omnium huiusmodi debitorum, ita uidelicet quod pro tercia parte huiusmodi debitorum cum equis et armis ad nos ueniant ad partes predictas in seruicium nostrum sicut predictum est, et quod eadem tercia pars cedat eis in solutionem uadiorum et amissionem equorum et omnium aliorum sumptuum seu missarum, secundum numerum hominum

[1] C D.I. iv, 734.

[2] I.e. light-armed horsemen.

quos adducent et tempus quo in dictis partibus in nostro obsequio morabuntur, saluo tantummodo passagio eorumdem in ueniendo ad partes predictas et de eisdem partibus reuertendo; et mercatores de societate Ricardorum de Luky, quibus abbas de Dowisky tenetur in trescentas quadraginta et duabus libris decem et septem solidis et tribus denariis soluendis infra quatuor annos proximo uenturos ad certos terminos, prout per recordum rotulorum scaccarii nostri Dublini constat euidenter, nobis teneantur in magna summa pecunie:

Nos per predictos iusticiarios, thesaurarium, Rogerum, Walterum, et Magistrum Johannem, pro centum et quatuordecim libris quinque solidis et nouem denariis, quos idem abbas soluit Johanni Deneger in instanti ad uadia sex hominum ad arma cum totidem equis coopertis et duodecim hobelariorum competenter armatorum et sexaginta et duorum hominum peditum in comitiua predicti iusticiarii nostri Hibernie ad nos in subsidium guerre nostre predicte uenientium, soluenda et acquitanda per centum dies remisimus et perdonauimus predictis mercatoribus totum predictum debitum trescentarum quadraginta et duarum librarum decem et septem solidorum et trium denariorum, ita quod idem abbas uersus eosdem mercatores sit quietus de eisdem, et ipsum abbatem inde uersus eos acquietamus et acquietare faciemus. Volumus eciam et precipimus quod totum predictum debitum trescentarum quadraginta et duarum librarum decem et septem solidorum et trium denariorum predictis mercatoribus, in compoto suo nobis reddendo de debitis in quibus nobis tenentur, penitus allocetur.

In cuius rei testimonium has literas nostras fieri fecimus patentes.

Testibus prefatis iusticiariis, thesaurario, Rogero, Waltero, et Magistro Johanne; apud Dublin: uicesimo quinto die Junii anno regni nostri uicesimo nono.

Two seals are attached to these Letters Patent, of which a *précis* is preserved in E.

It must be remembered that the abbot of Duiske, like the heads of other religious houses, was under obligation to supply soldiers for the king's service, just as lay landowners were. And we find that as late as 1537 the abbot of Duiske exacted from his tenants the oppressive custom of "coyne and livery," applicable to this purpose.[1]

Geoffrey de Joinville, or *Geneville*, assisted in the government of Ireland, as Viceroy, and as justiciary. He married Matilda de Lacy, and died at Trim, as a Dominican monk, in 1314.

Sir John Wogan, justiciary, played a large part in Irish affairs towards the end of the thirteenth century. It was he who, as Viceroy, was responsible for the humiliation of the order of Templars in Ireland in 1308.

Richard de Bereford was appointed treasurer of the Irish Exchequer 3 June, 1300, and became Chancellor of Ireland in 1314.

Walter Wogan appears as seneschal of Wexford, and as custodian of the royal manors at Old Ross, about 1310–12.[2]

[1] See Graves, *Presentments of Grievances temp. Hen. VIII*, p. 120.

[2] Hore's *New Ross*, pp. 175–177.

John Ocle held two carucates at Mount Garrett, co. Wexford, in 1306.[1] He appears in 1299 and 1302 in the Irish Justiciary Rolls.[2]

There is also extant an Inspeximus made in the thirteenth year of Edward II (1320) of these Letters Patent, exonerating the merchants named therein from their debt to the royal exchequer.

94.

Grant by William, bishop of Ossory, and his chapter, to the convent of Duiske for their own use, of the church of Offerlane with its chapels, &c.; as expressed in the charter and quit claim of William le Gras of pious memory, saving all dues to the bishop and chapter; the bishop to collate to the vicarage when vacant.

Uniuersis Christi fidelibus presens scriptum uisuris uel audituris Willelmus dei gratia Ossoriensis episcopus eternam in domino salutem.

Quoniam ea que perpetua firmitate debent gaudere ad perpetuam memoriam publice debent commendari scripture, ad uniuersitatis uestre noticiam uolumus peruenire, nos consilio et assensu decani et capituli ecclesie cathedralis nostre de Kylkenny concessisse et hac presenti carta nostra confirmasse uiris religiosis abbati Sancti Saluatoris de Dolbisky et monachis ibidem deo seruientibus presentibus et futuris diuine pietatis intuitu et sacrosancte religionis obtentu ecclesiam de Offarkelan cum suis capellis omnibus singulis et omnibus aliis suis pertinentiis, sicut melius et plenius in carta et quieta clamancia bone memorie Domini Willelmi le Gras continetur, in proprios usus conuertendam et in perpetuum possidendam, saluis omnibus oneribus ordinariis et extraordinariis ad dictam ecclesiam et suas capellas spectantibus debitis et consuetis: Ita quod occasione exemptionis priuilegiorum dictorum abbatis et monachorum nullum preiudicium quo ad premissa onera ordinaria et extraordinaria nobis et ecclesie nostre predicte et successoribus nostris poterit generari, salua nobis et successoribus nostris collatione uicarie cum uacare contigerit.

Et quia uolumus quod hec nostra deuota et caritatiua concessio et confirmatio rata et inconcussa in posterum permaneat, eam presentis scripti nostri testimonio et sigilli nostri appositione una cum sigillo capituli nostri ecclesie cathedralis de Kylkenny dignum duximus roborari.

His testibus, Magistro Johanne dicto Lupo decano cathedrali de Kylkenny, Nicholao de Exonia archidiacono Ossoriensi, Domino Symone Dunnyng precentore, Magistris Mauricio de Blauncheuille, thesaurario, et Mauricio de Deueneys, Nicholao filio Johannis, predicte ecclesie canonicis, et aliis.

The chapter seal is gone; but about three-quarters of the bishop's beautiful seal remains (see Plate II).

[1] Hore's *New Ross*, p. 171. [2] *Cal. of Justiciary Rolls of Ireland*, i, 283, 394.

William Fitz John was bishop of Ossory from 1303 to 1317; and as this instrument must be earlier than no. 96, which was executed 1 May, 1305, its date can be fixed within narrow limits, viz., between 13 Jan., 1303 (when the bishop was consecrated), and 1 May, 1305.

Offerlane is still a parish of Ossory diocese in Queen's Co. In 1247 when the Marshal estates were distributed among the five sisters (see p. 32), *William le Gras* or *William Crassus* was returned as holding half a Knight's fee in Offerlane[1] (see p. 16). Probably this land had been granted to the first William Crassus by the great Earl Marshal. Of the grant to the convent by William le Gras we have no other record.

John Lupus, or de Low, was dean of Ossory, and appears elsewhere, although the dates of his appearance cannot be precisely fixed.

Simon Dunning, precentor of Ossory, died in 1334 (not in 1434, as it is misprinted in Cotton's *Fasti*). He is buried in St. Canice's Cathedral, Kilkenny.

Maurice de Blancheville appears as Treasurer of Ossory in 1295; he became bishop of Leighlin in 1309.

Nicholas Fitz John, presumably a kinsman of the bishop, became Dean of Ossory subsequently.

95.

Quit claim by John, son of Stephen de Valle, of all rights in Tulachany as against the convent of Duiske.

John had succeeded at the Kilkenny assizes in obtaining a writ against Henry, the abbot, requiring him to restore 1 messuage, 5 carucates of land, 60 acres of wood, 40 acres of moor, and 16 acres of meadow in Tulachany, which John claimed to hold in chief from the Earl of Gloucester.

But the abbot produced before the King's justices in eyre, Gilbert de Sutton and William de Hawkesville, a deed of Alan de Valle, John's grandfather, surrendering all rights in Tulachany, whereupon John yielded and bound himself in £1000 not to put forward his claim again.

Dated at Duiske, Sunday, 28 March, 1305.

Uniuersis ad quos littere presentes peruenerint Johannes de Valle filius et heres Stephani de Valle salutem in domino.

Nouerit uniuersitas uestra quod cum ego in assisis Kylkenny breue de recto coram senescallo eiusdem libertatis super fratrem Henricum abbatem de Sancto Saluatore de Dowisky detulissem, ut ipse michi redderet unum mesuagium quinque carucatas terre, sexaginta acras bosci, quadraginta acras more, et sexdecim acras prati cum pertinentiis suis in Tulachany, que clamaui ut ius et hereditatem meam et tenere de Domino Comite Glouuernie in capite; et postea libertas eiusdem comitatus pendente breui meo predicto casu inopinato ad

[1] C.M.A. ii, 405.

manum domini regis fuisset deuoluta, ac iusticiarii per breue domini Regis ad itinerandum cum plena potestate uidelicet dominus Gilbertus de Sotton et Willelmus de Haukeswylle fuissent transmissi, tandem breue meum leuari procuraui et placitauimus: ad quod breue cum predictus abbas respondere debuisset protulit in medium quamdam finalem concordiam de eisdem tenementis in breui meo contentis et multo pluribus in Tulachany inter predecessores eiusdem abbatis et dominum Alanum de Valle auum meum legitime confectam, quam cum diligenter inspexissem et contractassem cum consilio meo sentiens me nichil iuris uel clamii posse habere breue meum retraxi, ius eiusdem abbatis et successorum suorum in perpetuum recognoscendo, dicens quod amplius ius meum uendicare nec prosequi uellem quantum ad illa que in breui meo fuerunt contenta nec in aliqua portiuncula terre uel tenementi quantumcumque parua nec ad passum unius pedis in eodem tenemento de Tulachany in perpetuum, unde eidem abbati et conuentui et eorum successoribus literas meas quiete clamancie feci in hec uerba:

Uniuersis ad quos littere presentes peruenerint Johannes de Valle filius et heres Stephani de Valle salutem in domino.

Noueritis me de me et heredibus meis et assignatis remisisse et in perpetuum quietum clamasse religiosis uiris Fratri Henrico abbati de Sancto Saluatore de Dowisky et eiusdem loci monachis tam presentibus quam futuris omne ius et clamium quod habui uel aliquo iure habere potui in uno mesuagio quinque carucatis terre sexaginta acris bosci quadraginta acris more et sexdecim acris prati et in eorum pertinentiis in Tulachany:

Ita quod nec ego nec heredes mei uel aliquis alius nomine meo seu heredum meorum quicquam iuris uel clamium in dicto mesuagio, quinque carucatis terre sexaginta acris bosci quadraginta acris more, et sexdecim acris prati, cum eorum pertinentiis nec in aliqua parte terre seu tenementi predicte grangie de Tulachany nec etiam ad passum unius pedis seu minus, de cetero uendicare poterimus seu calumpniare.

Volo igitur et per presentes me obligo et heredes meos et assignatos quod si umquam predictum abbatem uel aliquem successorum suorum in quacumqueuis curia implacitauerimus uexauerimus seu in aliquo grauauerimus, de aliquo tenemento uel terra in Tulachany, quod non teneantur mihi heredibus meis uel assignatis in aliqua curia respondere per aliquod breue uel ius quod in presenti usitatur uel in futuro poterit adinueniri, donec eidem abbati uel ei qui pro tempore fuerit de mille libris bonorum sterlingorum prius satisfecerimus et in pecunia numerata soluerimus.

In cuius rei testimonium presentibus sigillum meum apposui.

Datum ad monasterium predictum de Dowysky dominica proxima post festum Annunciationis beate Virginis anno domini MCCC quinto et anno regni regis Edwardi XXX tercio.

The seal is still attached to this instrument.

For *John de Valle* see p. 113 and cf. p. 30. The land at *Tulachany* which was granted to the monastery by William Marshal's Foundation Charter (no. 3) was very

precisely defined (see pp. 34, 164). The quit claim by *Alan de Valle*, which is referred to in the document before us, is not now extant. He is probably the person of that name who attested a grant of *Stephen de Valle* to St. Thomas' Abbey about 1258.[1] This *Stephen de Valle* the second is not to be confused with the earlier Stephen of Charter 3 (see p. 30).

Gilbert de Sutton attested Roger Bigod's charter to New Ross in 1279.[2] He was seneschal of Wexford in 1286–1289,[3] and he was killed "by the Irish" in the year in which this instrument was executed, 1305.[4]

96.

Remission by the Dean and Chapter of St. Canice's, Kilkenny (Ossory), to the convent of Duiske, of an annual rent of 6 marks paid to the cathedral by the said convent for the grange of Tulachany, in the event of the convent being evicted from the church of Offerlane, which they hold by grant of the Bishop and Chapter [no. 94].

Dated at Kilkenny, 1 May, 1305.

Uniuersis ad quos litere presentes peruenerint decanus et capitulum ecclesie Sancti Cannici Kylkenniensis salutem in domino.

Cum religiosi uiri abbas et conuentus de Dowysky nobis, ob certas causas utilitatem monasterii sui contingentes, concesserint annuatim pensionem sex marcarum in grangia sua de Tulachany annuatim reddendam ad festum beati Michaelis et ad festum Paschalis per equales portiones de terris et tenementis suis ibidem:

Nos indempnitati eorumdem abbatis et conuentus prospicere uolentes et diuersa dampna et pericula que eis per casum euenire poterunt in futurum considerantes, concedimus eisdem abbati et conuentui et eorum successoribus quod si ecclesia de Offarkelan quam tenent in proprios usus ex concessione episcopi nostri et nostra ab eis quoque modo euincatur per iudicium curie domini regis uel alterius cuiuscumque curie, uel quod ui potestatis seu cumulo malitie cuiuscumque alterius ingenii expellantur, ita quod ecclesiam illam in proprios usus tenere non possint, sicut eis concessum est ut predicitur, tunc cesset predicta pensio sex marcarum nobis uel successoribus nostris reddenda: et inde sint omnino quieti ipsi et successores sui.

In cuius rei testimonium presentibus sigillum commune capituli nostri apponi fecimus.

Datum Kylkenny in festo apostolorum Philippi et Jacobi anno domini MCCC quinto.

At the period which we have reached, we have a record showing that Jerpoint and Duiske (although both were poorer than they had been were the two richest religious houses in the diocese of Ossory (to which Duiske was

[1] R.T.A. 191. [2] *Chartae*, &c., p. 85. [3] C.D.I. iii, pp. 119, 214. [4] C.M.A. ii, 291.

reckoned to belong).[1] The *Red Book of Ossory* (an ancient register compiled for the most part in the fourteenth century) contains an account of the ecclesiastical taxations of the diocese about the years 1306 and 1318, in which the assessment of Jerpoint is set down at £4 16*s.* 8*d.*, and that of Duiske at £4 7*s.* 6*d.*

97.

Petition by the convent of Duiske, now reduced by hostile incursions, for the alms of the faithful: and an Ordinance by the General Chapter that masses and other devotions be said in all the 5650 houses of the Cistercian Order for the souls of benefactors, especially of those who have contributed moneys for the fabric of the abbey church.

Dated at Citeaux, 28 Jan., 1306.

Uniuersis Christi fidelibus has literas uisuris uel audituris abbas et conuentus monasterii beate Marie de Sancto Saluatore uidelicet de Dolbisky Cisterciensis ordinis Ossoriencis[a] diocesis salutem et gratiam Jesu Christi.

Quam grata et acceptabilia domino sunt opera misericordie ex ipsius superni remuneratoris sententia scire potestis, cum ipse deus in extremo iudicio opera misericordie exercentibus et precipue elemosinarum largitoribus sit dicturus "quod uni ex minimis meis fecistis mihi fecistis."

Cum igitur monasterium gloriose Virginis Marie superdictum, in quo religionis cultus deo acceptus hactenus uigebat, hiis diebus ad lamentabilem dissolutionem per hostiles incursus inualescentes reducatur, conuen ... uniuersorum fidelium largitione elemosinarum predicto monasterio sub .....

Nos uero omnium fidelium maximam salutem in uisceribus caritatis intime affectantes (quoniam ordinationem in capitulo generali apud Cistercium ad Christi laudem et animarum salutem factam, nobis deo teste sine omni fictione dixamus referendam dum idem ordo durauerit permansuram, uidelicet quod in quinque milibus sexcentis et quinquaginta domibus ordinis, exceptis domibus eidem de nouo constitutis, quolibet die cantatur pro omnibus illis qui predictum ordinem sustentant et protegunt, pro fratribus sororibus et benefactoribus eiusdem ordinis durante ordine quinquies mille sexcenties et quinquagenta misse.

Item totidem misse in honore Virginis gloriose pro uiuis et totidem pro defunctis pretereo totidem misse celebrantur per annum die statuto per capitulum generale pro omnibus fratribus sororibus familiaribus et benefactoribus ordinis predicti.

Et preter hec de quolibet capellano eiusdem ordinis quolibet anno tres misse de Sancto[a] Spiritu et tres de Sancto[a] Cruce adminus celebrantur; nichilominus statuimus quoddam dictum certum annuale, scilicet: de quolibet capellano ... predictis quolibet anno uiginti misse celebrantur pro defunctis monachis conuersis nostris familiaribus sororibus et omnibus benefactoribus

[1] See p. 25.

ordinis predicti eo anno quo decesserint; et de quolibet clerico dicti ordinis decem psalteria.[1] Et de quolibet conuerso[2] totidem per "miserere mei deus," uidelicet septies uiginti et decem "miserere" pro quolibet psalterio. Et sciendum est quod anime omnium fratrum familiariorum et benefactorum defunctorum ordinis eiusdem in omnibus capitulis dicti ordinis quolibet die ordine durante erunt absolute.

Item quolibet die stabilite sunt sexdecim mille nouies centum et triginta portiones elemosinarie capiende in refectorio ad alteram tabulam ad participiendum pauperibus pro animabus predictorum et omnium fidelium defunctorum omnia bona prenominata in perpetuum perseueranda conceduntur omnibus benefactoribus ordinis predicti; et illis precipue qui de bonis a deo sibi collatis aliquid contulerint fabrice ecclesie monasterii beate et gloriose Virginis Marie eidem Sancto Saluatore predicto uidelicet de Dolbisky.

Ceteras uero missas et orationes priuatas predictis benefactoribus concessas nemo preter deum cui omnia nota sunt potest numerare ipsi laus et gloria in secula seculorum Amen.

Nos uero abbas et conuentus supradicti omnium missarum orationum ieiuniorum uigiliarum et abstinenciarum ceterorumque bonorum, que in dicto monasterio per nos et successores nostros usque in diem iudicii domino concedente fieri poterunt, omnibus benefactoribus supradictis et eorum liberis et posteris plenam participationem tenore presentium concedimus, in uita pariter et in morte.

Dat: Cistercio quinto Kalendas Februarii anno domini millesimo ccc quinto.

This document is enriched with a fine coloured initial and splendidly executed.

The ordinance promising benefits to benefactors was necessarily an ordinance of the General Chapter, and so was dated at Citeaux. Each abbey, needing alms, would doubtless prefix its own petition.

The assertion in this instrument that there were at the date of its execution 5650 houses of the Cistercian Order is remarkable. It may have been so, but no record of so great a number has come down to us.[3]

We have no charters for the next half century, and all that we know of the fortunes of the abbey for this period is contained in a few incidental notices. The county of Carlow, like the rest of Ireland, was in a disturbed condition, and there was much lawlessness, with bloodshed.

In 1316 one Malachy M'Collatain killed Sir John de la Poer, a monk of Duiske,[4] with Gilbert Wengan, a lay brother (*conversus*) of the same house.

[1] For the repetition of psalms for the benefit of the departed, see Wordsworth, *Notes on Mediaeval Services*, p. 265.

[2] A "conversus" was a lay brother of the house.

[3] The most complete list is that of Dom L. Janauschek, "Notitia abbatiarum ordinis Cisterciensis per orbem universum" (1640).

[4] Extracts from the Duiske Registers (EFL).

It has been surmised that an effigy, still extant at Graiguenamanagh, represents this Sir John de la Poer, but there is no evidence on the point.[1]

In 1330 (Dec. 31) one Richard O'Nolan was besieged in the belfry of the abbey, and was compelled to give his son as a hostage.[2] We know nothing further of the circumstances.

In 1331 we have an account of a massacre in the neighbourhood of the abbey, following a wedding. "Dominus Willelmus de Brimegham cum sua familia occupauit tenuit et mansit in sylva monachorum de Dowsky in estate; et ibidem dominus Eustathius le Poer die Mercurii in festo Gervasii et Prothasii desponsavit filiam Johannis de Brimegham, comitis de Lowht. Et sabbato proximo sequenti, interfecti sunt novem de Rupensibus [the Roches]; inter quos interfectus fuit David filius David filii Alexandri de Fermoy et alii cum eis XIX."[3]

In 1342 Reginald, abbot of Mellifont, and Henry, abbot of Duiske, appear as judges in a dispute between the abbeys of Dunbrody and St. Mary's, Dublin.[4]

We have a note in the *Extracts* (FL) of a Charter, dated 2 Jan. 1347, by which Milo Sweetman, clerk, granted eight shillings and sixpence yearly to the convent of Duiske, being rent from a messuage of his in Kilkenny. The grantor was, doubtless, Milo Sweetman, who was Treasurer of Ossory, and became Archbishop of Armagh in 1361.

The Black Death ravaged the county of Kilkenny in the year 1348, but we have no knowledge of its presence at our abbey, which can hardly have escaped without a visitation, although it was noticed that mountainous districts were not so subject to the plague as other places.

98.

Ratification by James Butler, earl of Ormonde, for the good of his soul, &c., of the grant by Henry Fitz Henry Roche, formerly lord of the Rower, to the convent of Duiske, of fishing rights from Polmounty to Thomastown [no. 80].

Dated at Gowran, 29 Sept., 1352.

Uniuersis Christi fidelibus presentes literas uisuris uel audituris Jacobus filius Jacobi le Botiller Pincerna Hibernie et Comes Ormonie salutem in domino.

[1] See Mr. P. O'Leary's paper on "the Cistercian Abbey of Graignamanagh" (Journal R.S.A.I., 1892, p. 242 n.); and for a description of the effigy see the same *Journal*, vol. ii (1853), p. 64. [2] Clyn's *Annals*. [3] *Ibid.* [4] C.M.A. ii, 20.

Nouerit uniuersitas uestra quod cum Henricus filius Henrici de Rupe quondam dominus de Rowyr, pro salute anime sue et Oliue uxoris sue necnon pro animabus patris et matris sue ac omnium parentum predecessorum et successorum suorum, deo et beate Marie ac abbatie de Dowisky et monachis ibidem deo seruientibus in flumine de Barewe quicquid ibidem habuit libertatis ad piscandum a loco qui uocatur Polmuntath usque ad locum qui uocatur Portegrenan pro se et heredibus suis integraliter dedit et incantauit :

Nos uero pro salute anime nostre antecessorum et successorum nostrorum predictam donationem prefate piscarie in locis pronominatis absque ulla contradictione seu diminutione nostra uel heredum nostrorum deo et beate Marie et abbatie predicte ac monachis ibidem deo seruientibus tenore presentium approbamus ratificamus et in perpetuum confirmamus.

In cuius rei testimonium presentibus sigillum nostrum apponi fecimus.

Datum apud Balygauran in festo Sancti Michaelis Archangeli anno domini MCCC quinquagesimo secundo.

There is a note of this Ratification in the Extracts from the Duiske Charters (EFL).

James Butler, second earl of Ormonde, who was Viceroy of Ireland in 1359, died in 1382.

The position of the places mentioned in the charter is given under no. 80.

We have next a record of the year 1356, which indicates clearly the attitude of the monastery to English law.

"This year, the abbot, David Cornwalshe, for the fine of £40, obtained the King's pardon for divers offences;

To wit, when many of the King's enemies (Melaghin son of Ph. M'Owen O'Bryan, &c.), who at sundry times did, with ensigns displayed, invade his Majesty's territories in the respective counties of Dublin, Kildare, Carlow, and Wexford, and at all such times did rob, prey, or burn the same, and did also inhumanly murder Edmund Trahern, sheriff of Carlow, and many others of his Majesty's good and faithful subjects, he, the said abbot, did receive the said felons at Duiske, where he entertained them with bread, drink, fish, clothes, etc.;

And did also receive and harbour at Duiske aforesaid, Richard Browne, David, son of Henry Duff, &c., whom he knew had been guilty of divers robberies and felonies;

Also that William Porter, monk, Robert Hechyn, Henry Roth, John Eylward, John Brown, and Richard Godman, monks, did in the year 1356, at Duiske, stop William Archer, abbot of Duiske, and did rob him of two horses, value sixty shillings, one cloak, value ten shillings, one seal, value twenty shillings, and sundry other goods and chattels to the amount and value of a further

sum of twenty shillings; and knowing that the said monks had committed the said robberies and felonies, he, the abbot aforesaid, had nevertheless received and entertained them at Duiske."[1]

David Cornwalshe, mentioned in this record, as abbot of Duiske, appears again in 1363 and 1390 as abbot of the sister house of Dunbrody, in which capacity similar charges were made against him. He was evidently a lawless person, and impatient of all restraint.[2] William Archer was apparently his predecessor as abbot of Duiske.

The sequel of the affair is recorded in the Calendar of Patent Rolls:

1357, Dec. 13. Westminster, "Whereas the abbey of Duysky in Ireland is situated on the frontier of the King's Irish enemies, and his said enemies pursuing his lieges in his peace there are ofttimes received in the abbey and are nourished therefrom, although against the will of the abbot, and whereas the abbot was indicted before John de Boulton,[3] late justice in that land, of the receiving of the King's enemies and of the bringing of victuals to them for their refreshment, for pardon whereof he made fine before the said John by £40; and by various adversities coming upon him and the abbey he is now so depressed that he cannot pay the fine without the ruin of his estate, the King out of compassion has pardoned the fine, and acquits him thereof, and by these presents makes restitution to him of all his goods fallen into the King's hand on account of the premises."

A *precis* of this memorandum is in the Extracts from the Duiske Registers (E).

It is a memorandum of incidents thoroughly characteristic of Ireland under English rule. Duiske was founded by an Englishman. He planted English monks there. They became "Hibernis Hiberniores." They harboured the king's enemies. They were fined. They pleaded poverty. And they escaped scot free. The fourteenth century was not unlike the twentieth.

It was doubtless because of the growing disaffection to English rule which was displaying itself in the monasteries as elsewhere that a clause was inserted in the Statute of Kilkenny, enacted in 1367, to the effect that no Irish monks should be admitted into the religious houses in the English parts of Ireland. A similar ordinance had been enacted in 1310, but it was repealed after a few months, being re-introduced in 1367. It does not seem to have been acted on even then, for in 1380 a writ was despatched to twenty-one religious houses, ordering compliance with it.

[1] The above is the translation (with a few corrections) made by Archdall in his *Monasticon Hibernicum* of a Latin record in Archbishop King's *Collectanea* (Harris MSS., vol. xiii, in the National Library, Dublin), p. 361.

[2] Hore's *Dunbrody Abbey*, pp. 101–105, and C.M.A. ii, xc and xciii.

[3] John de Boulton was Treasurer of Ireland.

99.

Abandonment by Philip, abbot of Jerpoint, on behalf of his house, in favour of the convent of Duiske, of all claims upon the abbey of Killenny and the grange of Annamult; the convent of Jerpoint binding themselves in:

£20,000 in silver to the convent of Duiske; £10,000 sterling to the abbot of Citeaux; £1000 in florins to the Cistercian Order; £100 in florins to each of the four principal abbots of the daughter houses of Citeaux; £1000 in florins to the Pope for the defence of the Holy Land; £5000 sterling to the Earl of Gloucester; and £1000 in silver to the Earl of Ormonde.

18 March, 1362.

Uniuersis Sancte Matris ecclesie filiis ad quos presentes litere peruenerint Frater Philippus dictus abbas de Jeriponte et eiusdem loci conuentus Cisterciensis ordinis Ossoriensis diocesis salutem in domino sempiternam.

Nouerit uniuersitas uestra nos de unanimi consensu et assensu nostro remisisse relaxasse et omnino pro nobis et successoribus nostris in perpetuum quietum clamasse fratribus nostris abbati et conuentui domus seu monasterii Sancte Saluatoris de Dowisky eiusdem ordinis dicte Ossoriensis diocesis et eorum successoribus totum ius nostrum et clameum que habemus habuimus aut quouismodo obtinere potuimus seu poterimus monasterio Vallis Dei quod uulgo Killenny appellatur Leghlinensis diocesis cum omni iure suo ac grangia que uocatur Athnemolt Ossoriensis diocesis terris tenenda pratis pascuis pasturis aquis redditibus seruiciis ac pertinentiis suis quibuscumque ad predictum monasterium Vallis Dei et Athnemolt qualitercumque ab antiquo spectantur ab origine mundi usque diem confectionis presencium:

Ita quod nec nos nec successores nostri nec aliquis alius uice aut auctoritate nostra in prenominato monasterio Vallis Dei cum omni iure suo ac grangia de Athenemolt terris tenenda pratis pascuis pasturis aquis redditibus seruiciis ac aliis pertinentiis suis quibuscumque ut promittitur aliquam actionem habere aut uendicare poterimus, sed ab omni iuris remedio inde simus exclusi per presentes, factis relaxationibus aut aliis quibuscumque remediis ex quibus nobis seu successoribus nostris, in predicto monasterio Vallis Dei quod uulgo Killenny appellatur ut promittitur cum omni iure suo aut grangia de Athnemolt terris tenenda pratis pascuis ac pertinentiis suis quibuscumque ut promissum est, actio oriri seu competere potuit aut poterit prorsus renunciantes ac nullius fuisse uigoris aut firmitatis in hiis scriptis publice et expresse confitentes et declarantes:

Obligantes insuper nos successores nostros ac monasterium nostrum de Jeriponte predictum necnon omnia bona nostra per presentes antedictis abbati et conuentui Sancti Saluatoris de Dowisky eorumque successoribus, si

contra premissa quod absit aliquid attemptemus aut quouismodo in preiudicium molestiam seu grauamen predicti abbatis et conuentus eorumque successorum ex causis premissis attemptari faciamus, in uiginti milibus librarum argenti bone et legalis monete nomine puri debiti soluendis eisdem abbati et conuentui, infra mensem postquam predicti abbas et conuentus aut eorum successores per nos seu successores nostros uel aliquem alium uice nomine aut auctoritate nostris in premissis aut aliquo premissorum molestentur aut grauentur; necnon quascumque obligationes et facere quas ratione contentionis predicti monasterii de Killenny et grangie de Athnemolt cum omni iure ac pertinentiis suis primitus habite et orte dictis abbati et conuentui Sancti Saluatoris de Dowisky et eorum successoribus, uidelicet in decem milibus libris sterlingorum abbati Cistercii, in mille libris florinorum in subsidium operis Cistercii, cuilibet quatuor primorum abbatum in centum libris florinorum, Summo Pontifici in mille libris florinorum in subsidium Terre Sancte, Comiti Glouernie heredibus at attornatis suis in quinque milibus libris sterlingorum prout per literas nostras et predecessorum nostrorum eisdem abbati et conuentui et eorum successoribus inde confectas plenius patet:

ac easdem omnes et singulas tenore presentium renouantes confirmantes et ratificantes, relaxationibus remissionibus aut renunciationibus quibuscumque earumdem nobis et successoribus aut predecessoribus nostris inde per eosdem abbatem et conuentum aut eorum predecessores ante datum confectionis presentium factis non obstantibus, et nullius uigoris aut firmitatis uolumus easdem esse per presentes, priuilegiis constitutionibus aut quibuscumque remediis aliis in contrarium editis uel edendis in posterum non obstantibus.

Et ulterius obligamus nos successores nostros ac monasterium nostrum de Jerpoint predictum Comiti Ormonie heredibus et assignatis suis in mille libris argenti solvendis eidem comiti heredibus et assignatis suis, infra mensem postquam aliquis in premissorum aut grauamen predictorum abbatis et conuentus aut eorum successorum quoad predictum monasterium Vallis Dei cum omni iure suo uel grangia de Athnemolt per nos successores nostros aut quemcumque uice auctoritate uel conspiratione nostris moueatur seu moueri incipiatur.

In fidem et testimonium singulorum premissorum sigillum nostrum commune ex communi nostro consensu presentibus est appensum.

Datum in crastino Sancti Patricii anno domini millesimo tricentisimo sexagesimo primo.

Half the seal of abbot Philip remains attached to this document, of which there is a memorandum in F.L. In 1361 the abbot of Jerpoint had obtained an exemplification of the charter granted to his house by Prince John;[1] and the convent now at last finally all claims upon Kilkenny. This is the end of a dispute that had lasted for nearly a century and a half.

[1] Carrigan iv, 287.

100.

Letters Patent of K. Edward III, confirming the Inspeximus by K. Henry III [no. 56] of the charter of William Marshal the younger to the convent of Duiske [no. 12].

Dated at Kilkenny, 28 Jan. 1372.

Edwardus Dei gratia Rex Anglie et Francie et Dominus Hibernie omnibus ad quos presentes litere peruenerint salutem.

Inspeximus quasdam litteras patentes sigillo Henrici quondam Regis Anglie progenitoris nostri consignatas in hec uerba:

"Henricus Dei gratia Rex Anglie Dominus Hibernie Dux [*as in no. 56 down to*] rationabiliter testatur."

In cuius rei testimonium has litteras nostras fieri fecimus patentes.

Teste Willelmo de Wyndesore locum nostrum tenente in terra nostra Hibernie apud Kilkenni uicesimo octauo die Januarii anno regni nostri Anglie quadragesimo quinto regni uero nostri Francie tricesimo secundo.

Pro tresdecim solidis et quatuor denariis . . solutis in hanaper, per Iohannem de Batheby, cancellarium Hibernie . . tholewell . .

William of Windsor, through whom these Letters Patent were issued, was Viceroy of Ireland.

The fee paid at the Hanaper Office for this instrument was 13*s.* 4*d.*

A note of it is preserved in E.

We have now only incidental notices of the abbey during the next seventy years.

In 1400 we have record of a Papal Mandate to the abbot of Duiske to collate and assign to John Smyth, rector of Kilmedy, in the diocese of Ossory, the prebend of Blackrath;[1] but the abbot is not named.

In 1415 John Dound, doctor of laws, was abbot; he appears as answering, as proctor, for the loyalty of Arthur MacMurrough, who sought a safe conduct for his son, Gerald Kavanagh, going to England to the King's presence.[2]

We find in the Extracts from the Duiske Registers (E) an abstract of an instrument of the year 1424, which is of considerable interest as indicating the growing friendliness of the Irish chieftains to the abbey of Duiske, which had originally been an English foundation. It is as follows:

"Henricus filius Henrici filii Galfridi O'Ryan sue nationis capitaneus omnibus ad quos presentes litere peruenerint salutem.

"Inspeximus quandam chartam quam Dermitius O'Ryan dux de Odrona

[1] *Cal. of Papal Letters*, 6 Kal. Aug., 1400. [2] *Cal. of Patent Rolls*, 1415, July 24.

per licentiam et assensum et consensum Dermitii nutu dei regis Laginensium fecit, etc. Felici abbati et omni eiusdem loci conuentui de ordine monachorum Cistercensium in Hybernia in puram et perpetuam elemosinam (ut supra).

"Henricus hec omnia confirmat.

"Datum apud monasterium S. Saluatoris Dubusque Ossoren: dioces: die . . . ris . . post festum S. Barnabe apostoli sc. 15 die mensis Junii anno 1424.

"Testibus, Johanne abbate de Dubusque, etc.; Thoma filio Henrici O'Ryan; Philippo O'Bolgy. . ."

Henry Fitz Henry O'Ryan, who thus confirmed the charter of his ancestor to Killenny,[1] was the chief of the O'Ryan sept; his son *Thomas* is a witness to his Inspeximus and Confirmation. It was obviously in the interests of the abbey of Duiske to obtain the approval of the O'Ryans to this ancient grant, in order that their rights over the Killenny lands, which were in O'Ryan territory, should not be challenged.

Presumably, John, the abbot, who attests the Inspeximus is "John Dound" who appeared in 1415.

In 1437 we have the abbot of Duiske mentioned on several occasions as a papal mandatory.[2] In 1440 there is a note in both F and L that Henry Weyng, formerly abbot of Duiske, died.

101.

Lease for five years by Philip, abbot of Duiske, and his convent, to Thomas White, son of John White the younger, bailiff of the Earl of Ormonde of Dunfert, of 20 acres in Annamult, from Feusdyche to Merdyche, between the abbey lands and the lands of Dunfert, and from Adameslaede to Kylmochone, with half the profits of the mill and the river: the said Thomas to bear half the cost of repairing the mill and the whole cost of repairing the road thereto, and to pay twelve pence annually towards the repair of the monastery; the monastic tithes to be paid as heretofore.

Dated at Tulachany, 4 May, 1440.

Pateat uniuersis per presentes nos Philippum abbatem monasterii de Valle Sancti Saluatoris de Dowisky Cisterciensis ordinis Ossoriensis diocesis dedisse et concessisse Thome filio Johannis yonger† White balliuo Comiti Ormond de Dunfert ad terminum quinque annorum uiginti acras terre arrabilis† in Aghnemolte, situatas in longitudine a ffeusdyche eiusdem ille usque ad

[1] Charter i, p. 5, *supra*.

[2] See *Cal. of Papal Letters* s. a. 1437, 1444.

Merdyche inter terras eiusdem abbatis et terras de Dunfert, et in latitudine ab Adameslaede usque ad Kylmochone; una cum medietate omnium prouentuum et profituum et emolimentorum molendini et aque eiusdem domini pro suo laudabili seruitio.

Et predictus Thomas concessit super se medietatem reparationis predicti molendini suis sumptibus et expensis, ac reparationem uie eundi ac exeundi ad predictum molendinum, et quolibet anno durante termino predicto soluere xii denarios bone et legalis monete ad reparationem monasterii eiusdem Valle Sancti Saluatoris:

habendas et tenendas predictas xx acras terre arrabilis, et medietatem prouentuum et profituum molendini et aque, ut predictum est, predicto Thome White libere et quiete ab omni actione seculari et spirituali, decimis exceptis soluendis monachis deo seruientibus in predicto monasterio termino incipiente ad festum Pasche anno domini millesimo cccc mo quadragesimo.

In cuius rei testimonium presentibus sigillum officii nostri apponi fecimus.

Datum apud Tyllaghanny in crastino Inuentionis Sancte Crucis anno supradicto.

The *earl of Ormonde*, named in this charter, was James Butler, 4th Earl. The castle of *Dunfert* (the modern Danesfort) in the barony of Shillelogher, co. Kilkenny, was built by his predecessor in the title; *Annamult* is in the old parish of Dunfert.

102.

Quit claim by Philip, abbot of Duiske, and his convent, to James Butler, earl of Ormonde, in respect of 41*s.* 8*d.* annually, out of 45*s.* which they receive from lands and holdings in Thagh Uiocheran or Thagh Meran, and Kilcolumb, in the barony of Knocktopher; also in respect of eight acres within the burgage of Newtown of Jerpoint.

10 Dec., 1440.

Uniuersis has literas uisuris uel audituris Philippus abbas monasterii beate Marie uirginis de Dowisky alias de Valle Sancti Saluatoris Cisterciensis ordinis et conuentus eiusdem monasterii salutem.

Cum nos et predecessores nostri habere consueuimus quadraginta et quinque solidos annualis redditus leuandos et percipiendos in et de omnibus mesuagiis terris et tenementis cum pertinentiis suis in Thagh Uiocheran alias Thagh Meran et in Kylcollum iacentibus in baronia de Croktogher per equales portiones ad terminos consuetos uidelicet Michaelis et Pasche:

Noueritis nos predictum abbatem et conuentum monasterii predicti de unanimi assensu et concensu nostro iam remisisse relaxasse et omnino pro nobis et de nobis et successoribus nostris inperpetuum quietem clamasse, domino Jacobo le Botiller Comiti Ormond libertatem predictorum mesuagiorum terrarum et tenementorum heredibus et assignatis suis totum ius

nostrum et iuris clameum, quod uel que habuimus uel habemus, in quadraginta uno solidis et octo denariis redditus de predictis quadraginta quinque solidis annualis redditus predicti.

Noueritis nos insuper predictum abbatum et conuentum de unanimi assensu et concensu nostro remisisse relaxasse et omnino pro nobis et successoribus nostris in perpetuum quietem clamasse, prefato Jacobo heredibus et assignatis suis, totum ius nostrum et iuris clameum quod uel que habuimus uel habemus in octo acris terre arrabilis,† cum pertinentiis suis iacentibus in diuersis parcellis infra burgagium Noue Ville de Jeriponte sicut sibi affig . . . per certas metas et bundas diuisis.

Ita uidelicet quod nec nos predictus abbas et conuentus, nec successores nostri, nec aliquis alius nomine nostro, aliquid ius seu iuris clameum aut actionem in predictis octo acris terre cum pertinentiis suis nec in predictis quadraginta uno solidis et octo denariis predicti annualis redditus, ut predictum est, uersus predictum Jacobum heredem et assignatos suos amodo exigere clamare nec uendicare poterimus inperpetuum; set ab omni actione iuris et remedii inde simus exclusi per predicta.

Et nos predicti abbas et conuentus et successores nostri predictas octo acras terre cum pertinentiis suis et predictos quadraginta unum solidos et octo denarios annualis redditus ut predictum est prefato Jacobo heredibus et assignatis suis, contra omnes gentes warantizabimus et acquitabimus et inperpetuum defendimus.

In cuius rei testimonium presentibus sigillum nostrum commune apposuimus.

Datum decimo die Decembris anno regni regis Henrici sexti post conquestum Anglie decimo nono.

The seal remains in good condition.

"New Town near Jerpoint" was an important corporate town in the thirteenth and fourteenth centuries. Like "New Town on the Barrow" near the monastery of Duiske (see p. 93), it grew up round the abbey.

Perhaps *Kelcolumb* should be identified with Columbkille or Kilgriffen, an ancient parish, not far from Thomastown, co. Kilkenny.

It would appear that to abbot Philip succeeded one Dermit. In the Calendar of Papal Letters,[1] under the year 1447, we have a repetition or confirmation of a Papal Mandate to Dermit, abbot of Duiske, who about eight years before had deprived Patrick, abbot of St. Mary, Ferns, and given possession of that abbey to one Thomas. The confirmation was necessary because Dermit was not in peaceable possession of his abbey when he executed the mandate originally sent, but had "an adversary in the matter." Probably after Philip's death the succession was disputed.

In the same Calendar of Papal Letters,[2] under the year 1450, there is

[1] Vol. x, p. 306. [2] Vol. x, p. 497.

another entry about the Abbey of Duiske. The abbey had recently sent a petition to the Pope, alleging that James, earl of Ormonde, Edmund and Robert, his brothers, and Donatus MacMurchu, Donnell O'Ryan, Thady Magillapadraich, and Donnell Kavanagh,[1] with others, had oppressed the monastery and demanded dues and various subsidies, by reason of which all the monastic buildings were threatened with ruin. The bishops of Ossory and Leighlin, with the abbot of Leix, as papal mandatories are directed to make inquiry and, if the charges are substantiated, to cause the aggressors to desist. As the Ormondes and the Irish chieftains are alike included among those from whom the abbey sought redress, this is probably only an instance of the disputes as to dues, which were common everywhere, between the monastic houses and the owners of land.

103.

Public instrument addressed to the Bishops of Ossory and Leighlin, their Vicars-General, the Deans and Chapters, and other ecclesiastical dignitaries of those two dioceses, by Dermit O'Curryn, archdeacon of Leighlin: quoting his commission as delegate from Pope Pius II to conduct the process between the Abbey of Duiske and the Dean and Chapter of Ossory, dated Mantua, vii Id. October, 1459; and also the bill of the abbot of Duiske, requesting him to proceed against the Dean and Chapter of Ossory who have exacted 14 marks from the grange of Tulachany belonging to the abbey:

Stating that he, the archdeacon, having duly summoned the Dean and Chapter of Ossory, and they having contumaciously absented themselves, has passed sentence on them condemning them to restore to the monks the sum of 14 marks, and to pay 6 marks costs, which sentence was pronounced in the church of Ullard, Leighlin diocese, 14th Oct., 1460, there being present Dermicius Onedy and Malachias Ochogly, public notary; Thacius and Patrick M'Duball: wherefore he peremptorily orders the bishops of Ossory and Leighlin and the others above mentioned, within 12 days, to restrain by ecclesiastical censure all rebels against his sentence, warning Edmund, son of Richard Butler, and the Chapter to desist from hindering the abbot and convent or their proctors in their peaceful possession of the said sum, anyone of whatever rank, except the bishops, not fulfilling, or acting contrary to, his sentence after twelve days to be put under an interdict, and if he persist another 12 days to be suspended *a divinis*, and for yet

[1] This was, no doubt, Donnell Reagh Kavanagh of charter 104.

another twelve to be excommunicated: in case the foresaid ecclesiastics owing to their own daily business are unable to carry out his mandate, he commissions the abbots, priors, parochial clergy, and public notaries, etc., of the two dioceses to execute it; either of the bishops failing to acquiesce in the mandate to be forbidden entrance to their church.

Dated in the prebendal church of Ullard, 14 October, 1460.

Testified by Malachias Ochogly, Canon of Leighlin, public notary.

Reverendis in Christo patribus ac dominis dominis permissione diuina[1] eorumque in spiritualibus et temporalibus uicariis decanis et capitulis singulisque canonicis ecclesiarum Ossoriensis et Leglinensis, ac aliis uniuersis et singulis personis dignitates personatus administrationes officia et beneficia obtinentibus in eisdem, necnon omnibus quorum interest uel intererit, quosque infrascriptum tangit negocium seu tangere poterit, quomodolibet in futurum quibuscumque nominibus significantur, Dermicius Ocurryn archidiaconus ecclesie Leglinensis delegatus cum illa clausula que in infrascripto rescripto continetur auctoritate sedis apostolice deputatus salutem in domino sempiternam.

Et mandatis nostris ymo uerius apostolicis firmiter obedire uolentes litteras sanctissimi in Christo patris domini nostri Pii diuina prouidentia pape II, cum cordula canopis eius uero bulla plumbea more Romane curie impendentes bullatas sanas integras non uiciatas non cancellatas nec abrassas uel abolitas nec in aliqua sui parte suspectas, sed omni prossus† uicio et suspectatione ut ex earum inspectione prima facie apparebat carentes, nobis per discretos uiros abbatem et conuentum monasterii Beate Marie de Dowygly† Cisterciensis ordinis Ossoriensis diocesis coram notario publico et testibus infrascriptis aliisque personis attestatis more debito pensatis, cum ea que decuit reuerentia sub huiusmodi tenore noueritis recepisse:

"Pius episcopus seruus seruorum dei dilectis filiis decano et archidiacono ac cancellario ecclesie Leglinensis salutem et apostolicam benedictionem. Conquesti sunt nobis abbas et conuentus monasterii Beate Marie de Dowygly† Cisterciensis ordinis Ossoriensis diocesis quod Decanus et Capitulum ecclesie Ossoriensis quandam summam pecuniarum ab eis exigere indebite nituntur annuatim. Ideoque discretioni uestre per apostolica scripta mandamus, quatinus, uocatis qui fuerint euocandi et auditis, hinc inde propositis quod iustum fuerit appositione remota usuriis cessantibus, decernatis, facientes quod decreueritis per censuram ecclesiasticam firmiter obseruari. Testes autem, qui fuerint nominati, si se gratia odio uel timore subtraxerint, censura similiter appositione cessante compellatis testimonium ueritati perhibere, quod si non omnes hiis exequendis poteritis interesse duo aut unus uestrum ea nichilominus exequentur. Datum Mantue anno Incarnationis dominice MCCCCl nono septimo Id. Octobris, pontificatus nostri anno secundo."

[1] *Sic*, but evidently the words "episcopis Ossoriensi et Leglinensi" have been omitted.

Post quarum litterarum apostolicarum presentationem receptionem per nos ut premittitur factas, fuimus per antedictos abbatem et conuentum cum instantia debita requisiti, quatenus ad executionem dictarum litterarum apostolicarum et contentorum in eisdem procedere dignaremur, ac suam petitionem siue libellum in scriptis coram nobis in iudicio sub forma et tenore qui sequuntur proposuerunt:

"In dei nomine amen. Nos abbas Beate Marie de Dowygly Cisterciencis ordinis Ossoriensis diocesis, coram uobis archidiacono ecclesie Leglinensis iudice siue executore a sede apostolica in quadam causa peccuniarum mota siue mouenda inter nos abbatem et conuentum dicti monasterii et decanum et capitulum ecclesie chahedralis† de Kylquinie specialiter deputato, constitutus nomine nostro et nostri conuentus contra et aduersus dictos decanum et capitulum in iure propono, quod dicti decanus et capitulum summam xiiii marcarum in argento a grangea nostra de Tulachany diocesis Ossoriensis indebite exigerunt et adhuc detinent.

Qua propter uestrum officium, cum ea que decuit reuerentia, auctoritate apostolica uobis in hac parte commissa, requirimus pariter et imploramus quatinus, dictis decano et capitulo ad uestram presentiam uocatis et probatis in ea causa probandis, ipsos decanum et capitulum ad tantam summam supradictam peccuniarum argenti restituendam nobis integraliter sententialiter et diffinitive auctoritate prefata cum omnibus debitis expensis condempnetis, ac silentium perpetuum eisdem decano et capitulo ne de cetero in futurum dictam summam pecunie exigent uel aliquis eorum exiget imponatis, quod sic decreueritis per censuram ecclesiasticam firmiter obseruare faciatis."

Nos igitur iudex siue executor prefatus mandatum apostolicum exequi ut tenemur prefatos decanum et capitulum ad certos diem et locum per apparitores nostros, speciale mandatum a nobis super hoc habentes, citari fecimus, de qua quidem citatione fides nobis in iudicio facta fuit ac pro nostra iurisdictione in hac cognoscibili decreuimus: ipsi uero decanus et capitulum ad nostram presentiam uenire contempserunt et contumaciter se absentarunt. Ideoque nos antedictus iudex siue executor ad requisitionem dictorum abbatis et conuentus ad diffinitiuam sententiam in hac causa proferendam sub hac forma processimus:

"In dei nomine amen. Nos uero Dermicius Ocurryn archidiaconus ecclesie Leglinensis iudex siue executor a sede apostolica cum illa clausula "quod si non omnes et cetera," in quadam causa summe peccunie siue pensionis xiii marcarum mota siue mouenda inter abbatem et conuentum monasterii beate Marie de Dowygly† Cisterciensis ordinis Ossoriensis diocesis et decanum et capitulum ecclesie chahedralis† de Kylquinie, quam quidem summam peccunie hiidem decanus et capitulum a grangia de Tulachany ad proprietatem abbatis et conuentus predictorum pertinens† indebite et contra iuris formam et indenture, prout in ipsa dentura plenius continetur, exigerunt et in futurum exigere presumunt, specialiter deputatus: Ideoque nos antedictus iudex siue executor, dictis partibus iudicialiter preconisatis et prefatis abbate et conuentu personaliter coram nobis comparentibus ac antedictis decano et capitulo con-

tumaciter absentantibus, decretoque contumacie contra ipsos multipliciter per nos prolato, prout in actis continetur, ac cognitis et intellectis meritis et circumstanciis ipsius cause, deum et iusticiam pre oculis habentes uestigiis canonum inherentes dictos decanum et capitulum ad restitutionem predicte summe xiiii^{xx} marcarum sententialiter et diffinitiue auctoritate apostolica nobis in hac parte directa condempnamus ipsosque abbatem et conuentum ob contumaciam partis aduerse et quod ad eosdem abbatem et conuentum proprietas eiusdem summe pertinet in possessionem ipsius summe siue pencionis prout in iure continetur mittimus et imponimus, ac eosdem decanum et capitulum nomine expensarum ad summam sex marcarum condempnamus."

Hec sentencia lata est et lecta in ecclesia prebendali de Ilard Leglinensis diocesis xxiii^{o} die mensis Octobris anno domini MCCCCLX hiis ibidem testibus presentibus, uiz.:—domino Dermicio Onedy et Malachia Ochogly publico notario et Thaceo et Patricio M'Duball, et aliis quam pluribus clericis et laycis. In quorum omnium et singulorum fidem et testimonium sigillum nostrum presentibus apponi fecimus. Que omnia et singula et dictas litteras apostolicas et hunc nostrum processum omnia et singula in eis contenta uobis et singulis supradictis insinuamus notificamus et intimamus et a uestram et uestram cuilibet noticiam deducimus et deduci uolumus per presentes.

Quocirca uos dominos episcopos Ossoriensem et Leglinensem uestrosque in spiritualibus et temporalibus uicarium uel uicarios decanos capitula singulos[que] [illegible] et singulos supradictos ecclesiarum Ossoriensis et Leglinensis quibus hic presens noster processus dirigitur coniunctim uel diuisim ex tenore apostolica nobis in hac parte commissa primo secundo et tercio peremptorie requirimus et monemus et nichilominus nobis et cuilibet uestrum in uirtute sancte obedientie et sub infrascriptis sententiarum penis districte precipiendo mandamus, quatenus infra duodecim dierum spacium post presentationem siue notificationem presentis nostri processus uobis seu alteri uestrum factum immediate sequentem, quorum duodecim dierum quatuor pro primo, quatuor pro secundo et reliquos quatuor dies uniuersis et singulis pro tercio et peremptorio ac monitione canonica premissa assignamus, omnes et singulos contradictores et rebelles si qui fuerint in hac causa per censuram ecclesiasticam compescatis siue compellatis ne dictos abbatem et conuentum uel eorum procuratorem seu procuratores perturbant inquietant molestant [illegible] et eosdem in possessione dicte summe siue pencionis quiete et libere existerint.

Monemus insuper modo et forma supradictis Edmundum filium Riscardi Butiler ac decanum et capitulum supradictos et uos omnes et singulos prenominatos, ne dictos abbatem et conuentum uel eorum procuratorem seu procuratores quouis colore quesito aliquomodo impediant uel aliquis eorum impediat, quominus dicti abbas et conuentus uel eorum procuratores siue procuratorem in possessione dicte summe siue pensionis in pace existerint et ea pacifice gaudeant, cum effectu. Quod si omnia forte et singula per uos ut supra mandantur non adimpleueritis aut non adimpleuerunt, aut aliquod

in contrarium feceritis aut fecerint seu fecerit, aut premissis omnibus et singulis non parueritis aut non paruerint cum effectu, nos in uos omnes et singulos qui culpabiles seu culpabilis fueritis seu fuerint uel fuerit in premissis, cuiuscunque sitis sint uel sit preeminencie dignitatis status gradus ordinis uel conditionis, pontificali dignitate semper saluo, prefatis xii dierum canonica monitione premissa auctoritate apostolica qua supra singulariter in singulos ex nunc prout ex tunc et ex tunc prout ex nunc in hiis scriptis excommunicationis in diocesibus Ossoriensis et Leglinensis et interdicti sententias ferimus. Si uero huiusmodi interdictum per alios xii dies immediate sequentes sustinueritis dicta canonica monitione premissa uos a diuinis suspendimus. Verum si prefatas suspencionis et interdicti sententias per alios duodecim dies immediate sequentes animo indurato quod absit sustinueritis, ex nunc prout ex tunc prout ex nunc simili canonica monitione premissa in hiis scriptis uos sententia excommunicationis innodamus.

Ceterum cum ad executionem huismodi mandati appostolici atque nostri ulterius faciendam forte uos cotidie non adesse personaliter negociis uestris undique prepediti, uniuersis et singulis dominis abbatibus prioribus prepositis archidiaconis scolasticis cantoribus custodibus thesaurariis canonicis tam chahedralium† quam collegiatarum parochialiumque ecclesiarum rectoribus curatis uicariis notariis seu tabellionibus et clericis quibuscunque per Ossoriensem et Leglinensem dioceses ubilibet constitutis et eorum cuilibet in solidum super ulteriori executione dicti mandati apostolici atque nostri ulterius facienda tenore presentium committimus uices nostras executionis realis, donec ad nos duximus reuocandas; duos etiam et eorum quemlibet coniunctim uel diuisim primo secundo et tercio peremptorie requirimus et monemus, ipsisque et eorum cuilibet in uirtute sancte obediencie et sub dictis excommunicationis penis quas canonica monitione premissa in eis et eorum quemlibet ferimus in hiis scriptis si ea que in hac parte committimus neglixerint seu contempserint contumaciter adimplere, districte precipiendo mandantes quatenus ipsi eorumque quilibet qui per partem dictorum abbatis et conuentus uel suorum procuratoris siue procuratorum fuerint uel fuerit legitime requisiti uel requisitus coniunctim uel diuisim, ita tamen quod in hiis alter alterum non exspectat nec unus pro alio se excuset, infra vi dierum spatium quos ipsis et eorum cuilibet super hoc pro omni dilatione et monitione canonica assignamus, et ad dictos dominos episcopos Ossoriensem et Leglinensem qui pro tempore fuerint ipsorumque in spiritualibus et temporalibus uicarios generales si opus fuerit necnon dictarum Ossoriensis et Leglinensis loca insignia et priuata et ad alias ecclesias seu personas de quibus expediens fuerit, pro premissis et infrascriptis fideliter presentandis et exequendis, personaliter accedunt seu attendant supradictas litteras apostolicas et hunc nostrum processum et quascunque scripturas ad huiusmodi executionem faciendam pertinentes ac omnia in eis contenta, uobis et cuilibet uestrum aliisque quorum interest uel intererit coniunctim et diuisim semel et pluries ac tociens quociens fuerit opportunum legant insinuant intiment et notificent ac legi insinuari intimari sine dolo et fraude procurent; dictos-

que abbatem et conuentus uel procuratorem siue procuratores eorumdem eorum nomine ut premittitur in eadem possessione dicte summe siue pencionis defendant, contradictores huiusmodi et rebelles executionis auctoritate nostra ymo uerius apostolica si quos reperietis per censuram ecclesiasticam, et generaliter omnia et singula uobis in hac parte commissa fideliter exequantur iuxta traditam a sede apostolica nobis formam et secundum presentis nostri processus continentiam et tenorem.

Ita tamen quod iidem nostri commissarii uel quicunque in preiudicium dictorum abbatis et conuentus uel iuris nichil ualeant nec in processibus per nos habitis atque latis sententias relaxando aliquid immutare, aut eiisdem abbati et conuentui nocere possent quomodolibet uel obesse, potestatem omnimodam denegamus, si continget nos in aliquo super premissis procedere de quo nobis plenariam potestatem reservamus, et non propterea nostram huiusmodi potestatem in aliquo reuocare, nisi de reuocatione ipsa specialem et expressam in nostris litteris fecerimus mentionem. Et si monitionibus nostris ymo uerius apostolicis uos reverendi patres episcopi non adquieveritis uel aliquis nestrum non adquieverit ingressum ecclesie primo in qui culpabilis fuerit auctoritate apostolica interdicimus. Sciturі quod crescente contraria crescere debet et pena ad alias penas iuris contra uos uel aliquem uestrum qui culpabiles fuerit uel fueritis procedemus. Prefatas quoque litteras apostolicas et hunc nostrum processum et omnia et singula presens negocium tangentia uolumus penes dictos abbatem et conuentum uel eorum procuratores remanere et non per uos uel aliquem uestrum qui culpabilis fuerit uel fueritis contra ipsorum abbatis et conuentus siue suorum procuratoris uoluntatem quomodolibet retinere; contrarium uero facientes prefatis nostris sentenciis per nos habitis et latis eo modo quo late sunt uolumus subiacere, absolutionem uero omnium et singulorum premissorum qui prefatas nostras sentencias uel earum aliquam incurrerint nobis tantummodo reseruamus. In quorum omnium et singulorum fidem et testimonium prefatas litteras nostras seu hoc presens puplicum instrumentum huiusmodi nostrum processum continentes in se seu continens per notarium infrascriptum subscribi et puplicari mandauimus. Data et acta in ecclesia prebendali de Hard Leglinensis diocesis xiiii^to^ die mensis Octobris anno domini MCCCCLX indictione viii, pontificatus Sanctissimi in Christo ac domini nostri domini Pii divina providentia pape II anno iii, presentibus ibidem discretis supradictis uiris ad premissa uocatis pariter et rogatis ad fidem plenariam in supradictis obseruandam per nos probabiliter asumptis. Insuper et sigillum nostrum proprium in fidem et testimonium premissorum apponi fecimus.

MALACHIAS

Et ego Malachias Ochogly canonicus ecclesie Leglinensis puplicus notarius predictarum litterarum apostolicarum presentationi receptioni citationi sententiarum excommunicationis suspencionis et interdicti promulgationi omnibusque aliis et singulis in premisso processu contentis, dum sit ut premittitur per dictum delegatum agerentur et coram eo fierent, una cum prenominatis

testibus presens interfui eaque omnia sic fieri uidi audiui. Ideoque has litteras presentes siue hoc presens publicum instrumentum processum huiusmodi in se continentes siue continens de mandato dicti delegati exinde et in hanc publicam formam redegi signoque nomine meis solitis et consuetis signaui rogatus et requisitus in fidem et testimonium premissorum et singulorum.

A fragment of the seal of the archdeacon of Leighlin remains attached to this instrument. The device is the sacred monogram IHS. We owe the transcription to Miss E. Thompson.

The lands granted at Tulachany have been the subject of several previous charters (see especially 9, 10).

For the prebendal church of *Ullard* or Ilard, see p. 38.

The bishops of Ossory and Leighlin mentioned in this instrument were probably *David Hacket* and *Diarmait* respectively. The Dean of Ossory may have been *Thomas Archer*. Sir *Richard Butler* of Polestown was brother of the 4th earl of Ormonde. Of *Dermot O'Curryn*, archdeacon of Leighlin, and papal commissary, we know no more than is set out above.

104.

Grant for ever by Donnell Reagh Kavanagh MacMurrough, Lord of Leinster, for the good of his soul, &c., of eight pence annually from each plough in his territory, to the convent of Duiske.

Dated at Enniscorthy, 3 April, 1475.

Sciant presentes ac futuri ad quorum noticiam presentes mee littere uisu uel auditu peruenerint, me Donalldum Fuscum Keuanach MacMurchur dominum totius Lagenie concessisse ac dedisse, diuine caritatis intuitu ac sacrosancte religionis appetitu, in honore dei patris omnipotentis semperque Virginis Marie, abbati monasterii beate Marie de Valle Sancti Saluatoris de Duffusque, Cisterciensis ordinis Ossoriensis diocesis, ac monachis ibidem deo seruientibus, pro salute anime mee predecessorum meorum et successorum, de me ac heredibus meis in infinitum descendentibus, in puram et perpetuam elemosinam octo denarios quolibet anno bone et usualis monete anglice a quolibet caruca arrante in dominio meo ad duos anni terminos: uidelicet quatuor denarios in quolibet festo Sancti Michaelis archangeli et alios quatuor denarios in quolibet festo Pasche.

Heredes igitur meos, omnesque alios a me per lineam masculinam in dominio meo succedentes, ad predictos viii denarios ut predicitur persoluendos obligo; ac igitur predictis abbati et monachis, ut prescribitur, do et concedo per presentes.

Et ut hec donatio et concessio in perpetuum sint ualitura, has literas meas siue presentem cartam sigilli mei maioris appositione corroboraui.

Hiis testibus presentibus, uidelicet Domino Diarmitio O'Bolgy, rectore de Carn Buada, Karolo ac Geralldo filiis antedicti Donaldi, Anlano O'Bolgy

medico (?), Donato filio Odonis O'bruin laico (?), Odone Offeraly, Cormaco O'bryun, Magonio O'brayn, Willelmo M'Alluairo, clericis Fernensis diocesis, et aliis quam pluribus.

Datum apud Iniscorthy tercio die mensis Aprilis anno domini MCCCCLXXV.

The Kavanagh territory included the hill country between co. Carlow and co. Wexford; and the larger part of the possessions of the abbey of Duiske were in this region on the Carlow side. Hitherto, the benefactors of the convent had been the Anglo Norman settlers and their descendants; the convent had been established by Englishmen and for Englishmen. It was only by degrees that it gained the allegiance of the Irishry. We have seen the direction in which its sympathies were moving more than a century before the date of this charter;[1] but now we find that it is actually taken under the protection of the Kavanaghs and their Irish friends, who attest the grant.

Donnell Reagh[2] *Kavanagh* was a direct descendant of Donnell Kavanagh, son of Dermot MacMurrough, Strongbow's father-in-law (see p. 6), and styled himself "Lord of all Leinster." He had, as chief of his clan, great influence in the neighbourhood of Duiske or Graiguenamanagh; and his protection and patronage must have been of immense service to the abbey, quite irrespective of the value of his annual grant.[3]

This charter was printed in 1883 by Rev. James Graves,[4] who gave therewith an illustration of Donnell Reagh Kavanagh's "greater seal," which is still attached. The legend round the seal is:

SIGILLVM DONALL MEICMVRACHADA REGIS LAGEIE.

This grant which was made "pro salute animae suae" was executed not long before the death of Donnell Reagh, which took place in 1476. He left several sons. *Gerald Kavanagh*, who attests the grant, became in his turn titular "lord of Leinster," and died in 1522. The other son here named, *Charles Kavanagh*, was afterwards the last abbot of Duiske (see p. 153).

The witnesses are all Irish, from the O'Byrne, O'Bolger, and O'Ferrally clans. *Donatus O'Bolgy* or O'Bolgy was rector of *Cara Baetha*, which is probably to be identified with Carnew, in co. Wicklow.

105.

Record of appeal in the Cathedral Church of St. Canice's by Henry, abbot of Duiske, as to the parish church of Offerlane, which had been transferred and granted by William, prior of Aghmacart, and Thomas Mishell, canon of Ossory, by authority of pretended papal letters, to Patrick MacGillapatrick:

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[1] See p. 136. [2] Reagh = *Riabhach* = *fuscus*, or "swarthy."

[3] There is a note of this charter in E (where it is dated incorrectly 1485), which gives the grant as "8 denarios quolibet anno." That would be very different from eight pence for each plough working on Kavanagh land, as the charter states.

[4] *Journal R.S.A.I.* vi, pt. i, p. 24. [5] Dowling's *Annals*.

the record being drawn up for a fee by William Fyan, clerk of Cashel diocese, a notary, in the presence of John Archdekyn and other witnesses.

6 Feb., 1490.

In dei nomine Amen. Presentis instrumenti tenore cunctis euidenter appareat quod anno ab incarnatione domini secundum cursum et computationem ecclesiarum Anglicane et Ibernice millesimo quadragintessimo octuagessimo nono, indictione VII, pontificatus sanctissimi in Christo patris et domini nostri domini Innocentii diuina prouidencia Pape VIII anno VI die uero XII mensis Februarii, in ecclesia cathedrali Ossoriensi, in mei notarii ac testium infra scriptorum presencia constitutus, probus et religiosus uir Frater Henricus abbas monasterii beate Marie de Valle Sancti Saluatoris Cisterciensis ordinis Ossoriensis diocesis quandam appellationem in quadem papiri cedula conceptam suis manibus tenens animo et intentione appellandi perlegit misit et interpossuit sub forma qua sequitur:

In dei nomine amen. Cum appellationis remedium ideo a iure sit inuentum, ut oppressis contra iusticiam iuris remedio succurratur, ac status appellancium et prouocantium integer conseruetur et illesus, hinc est quod licet nos Frater Henricus abbas monasterii beate Marie de Valle Sancti Saluatoris Cisterciensis ordinis Ossoriensis diocesis ac eiusdem monasterii conuentus fuerimus, ac in presenti simus uiri bone fame integri status et oppinionis illese, ac rectoriam parochialis ecclesie de Offarhillan ad ius et proprietatem dicti nostri monasterii spectantem per dies et annos pacifice possedissimus, et quiete de fructibus ipsius rectorie . . . ad utilitatem ipsius nostri monasterii pro nostre uoluntatis bene placito libere dispendissemus: nihilominus tamen honoribiles uiri, frater Willelmus prior monasterii de Aghmecarth, ordinis Sancti Augustini dicte diocesis, ac magister Thomas Mishell canonicus ecclesie Ossoriensis ac officialis generalis curie Ossoriensis, indices, auctoritate quarundam literarum pretensarum apostolicarum per quendam Patricium Macgillepadrig contra nos super firma dicte rectorie de Offarhillan sub forma . . . in euidentem impetratarum a sede apostolica ut asseritur, deputati coniunctim delegati ad importunam instantiam dicti Patricii . . . contra ius perperam et ex corrupto procedentes, spretis nostris defencionibus et exceptionibus, ... diffinitiuam per quam inter alia ipsam rectoriam prefato Patricio sub certa . . . . . ad uitam eiusdem concesserunt, et hoc in euidentem inutilitatem dicti monasterii cedere decreuerunt sententiam promulgarunt iniquam:

Idcirca nos dicti abbas et conuentus censentes, nos ac monasterium nostrum predictum ex dicta sententia fuisse et esse multipliciter aggrauatos ab ipsa sententia, si sententiae nomen habere mereatur, ac omnibus et singulis que elici poterint seu colligi ex eadem, et ne prefati iudices, . . . eorum alter seu quisquam alius nomine aut mandato eorundem, ad executionem dicte sententie forsitan procedentes aliquid in nostrum uel monasterii nostri preiudicium imposterum attemptare presumant, hos aut nostrum aliquem citando monendo excommunicando suspendendo aut interponendo aut aggra-

uando brachium seculare contra nos inuocando, fructus dicte nostre rectorie quorumcunque benefactorum nostrorum sequestrando aut alias quomodolibet occupando, aut aufferri et occupari faciendo, seu quidquam aliud in nostrum preiudicium attemptando, sacrosanctam sedem apostolicam ac sanctissimum in Christo patrem et dominum dominum Innocentium diuina prouidencia papam VIII . . . . . sedem uero metropoliticam Dublinensem ac reuerendissimum patrem Walterum miseratione diuina Dublinensem archiepiscopum ibidem . . . . . audientiam . . . . . salua . . . omnium et singulorum premissorum in his scriptis prouocamus et appellamus et in nos quatenus decenter petendi sunt postulamus et petimus nobis dari fierique . . . . . qui si nobis denegati fuerint aut loco minus tuto assignati aut pro his rebus . . . easdem sedes ut prius appellamus et appellationes modo quo supra petimus, subiicientes nos monasterium nostrum ac dictam rectoriam nostram de Offaruillan ac beneficia nostra quecumque . . . . et . . . . . necnon omnes homines nobis in hac parte adhaerentes et in futurum adhaerere uolentes pro . . . . . et tuitionem et defensionem . . . . . protestantes nos uelle hanc nostram appellationem corrigere emendare eidem addere et ab eadem subtrahere et in meliorem et competentiorem formam reddigere . . . . . omnibus et singulis quorum interest uel intererit iustificare et in . . . uelle et prosequi pro loco et tempore congruis . . . . . beneficio in omnibus semper saluo.

Super cuius appellationes . . . . . sisse . . . . prefatus Henricus abbas . . . . . me notarium antedictum cum instantia rogauit quatenus pro salario competenti unum uel plura publica sibi conficere instrumentum seu instrumenta acta sunt hec . . . . supra . . . . . presentibus protunc probis uiris dominis Petro Duy . . . . . Johanne Archedekyn . . . . . et me notario infra scripto et aliis testibus ad premissa rogatis.

Et ego Willelmus Ffyan clericus Cassellensis diocesis . . . . . imperiali auctoritate notarius . . . . . prefate appellationi . . . . eiusdem pariter et interpon . . . . . coram me et testibus supra scriptis sub anno indictione . . . . . et loco prementionatis acta et gesta . . . . . sic fieri uidi aut audiui. Ideoque hoc quidem instrumentum scripsi subscripsi et in hanc formam redegi . . . . . et nomine meis signaui rogatus et requisitus, in fidem et testimonium premissorum non . . . . . dictionis utilitatem nec rasura indictione rectorie superius factis quas hic approbo ego notarius prenominatus.

We owe the transcript of this faded and worn instrument to Miss E. Thompson. For the form of the attesting clause, compare that appended to no. 103, above.

The church of *Offerlane* had been granted to the convent of Duiske by charter 94 (between 1303 and 1305).

At *Aghmacart* (in Queen's Co.) an Augustinian priory had been founded at the time of the Anglo-Norman invasion of Ireland: it was in the MacGillapatrick country, which may account for the decision granting Offerlane church to *Patrick*

MacGillapatrick against which the convent of Duiske appealed. The prior *William* was probably William O'Brophy who was appointed to that office in 1481.

Thomas Myshel, LL.B., is buried in St. Canice's Cathedral,[1] a canon of Ossory and also of Cashel.

The archbishop of Dublin who appears in this instrument was *Walter Fitzsimon* (1484–1511).

VI.—THE DISSOLUTION OF THE ABBEY.

We have no more charters of the abbey of Duiske, and for the remainder of its history we have to rely on the fragmentary extracts that remain from the Register (EFL) and on the State Papers.

In 1501 or 1502, Charles, or Caher, Kavanagh was elected abbot.[2] He was a great personage, and is thus described by Stanihurst: "Cagher, a nobleman borne, in his time called Mack Murrough, descended of that Mack Murrough that was sometime King of Leinster. He was a surpassing devine, and for hys learning and vertue was created bishop of Leighlin[3] and abbot of Grage. He flourished in the year 1550, and was an hundred yeres old when he deceased."[4] He was the son of Donnell Reagh Kavanagh, and has appeared before as attesting his father's benefaction to the abbey.[5] His election as abbot shows how thoroughly Irish in its sympathies the abbey had become.

Abbot Kavanagh took a large part in diocesan affairs. In 1522 he appears as chancellor of Leighlin,[6] a position which Dowling[7] states that he held for eight years. During the episcopate of Bishop Thomas Halsey (1513–1521), an Englishman, who is not known to have ever visited Ireland, abbot Kavanagh acted as vicar-general of the diocese of Leighlin, and after the bishop's death he was appointed (in 1522) as one of the guardians of the spiritualities of the see.[8] Halsey's successor as bishop of Leighlin was Maurice Doran, a pious Dominican, who was murdered, after he had held the see for a year and a half, by his archdeacon, Maurice Kavanagh. The story of this murder is thus told in a State Paper of 1525 purporting to set out the misdemeanours of Piers Butler, eighth Earl of Ormonde: "The late bishop of Leighlin was heinously murdered by the abbot of Duske's son, who was the

[1] O'Phelan's *Epitaphs in St. Canice's*, p. 76.

[2] Extracts from the Duiske Registers (EFL).

[3] This is not accurate; see below.

[4] Holinshed, *Description of Ireland* (ed. 1577), p. 25; see p. 163.

[5] See p. 150. This is confirmed by the pedigree in the possession of Mr. Walter Kavanagh, D.L., of Borris, co. Carlow.

[6] Christ Church Deeds, 410. [7] Dowling's *Annals*, s. a. 1515.

[8] This is, no doubt, the fact behind Stanihurst's erroneous statement that he was bishop of Leighlin. See Dowling, and Christ Church Deeds, 410.

earl of Ormonde's nigh kinsman, that the abbot might enjoy that bishopric. Three of the earl's servants were at the murder, but he has not yet punished them. Moreover, he succoured the said abbot in his country when the Deputy [the earl of Kildare] did persecute him, as the procurer of the same murder."[1]

This is a shocking story, but Kildare hated Ormonde so heartily, that it may not be true in every particular. Abbot Kavanagh was, indeed, Ormonde's "nigh kinsman." He was his uncle, as the abbot's sister Sabh or Sabina had married Sir James Butler of Polestown, and their son was Piers Butler, eighth earl of Ormonde. And it is quite possible that Maurice Kavanagh, the archdeacon, was the abbot's son,[2] born before the abbot entered the Cistercian order, and that he received some assistance at the abbey in his flight from justice. But the account of the matter in Dowling's *Annals* is that the murderer (who was crucified for his crime) was instigated by a desire to revenge himself on Bishop Doran, who had reproved him for some irregularity, and this may have been his real motive. That a man of such high repute as the abbot should have "procured" the murder, for the sake of the temporalities of the bishopric, is not probable.

In 1513, by Abbot Kavanagh's direction,[3] one of his monks compiled the "Annals of Ireland," and incorporated them in the Registry of the convent, which was known as the "Annals of Duiske," or "the Auncient Book of Graigue." This Register is now lost, and is known only through the extracts from it which have survived, and which we have frequently cited (EFL).[4]

The abbot was a benefactor to the abbey church. In 1524 he presented it with a jewelled cross of silver, which was made for him; and in 1525 he procured "costly vestments for the monastery, viz., a cope, a chasuble, and two tunicles."[5]

But the abbey was soon to be dissolved, and its possessions dissipated. In 1533 the Chief Baron of the Exchequer, Patrick Finglas, made a report on the state of the county of Wexford, and among his recommendations was the following:—

"*Item*, to levyate the Kyngys charges to this Reformacon of Leinster ther

[1] Calendar of Carew MSS., p. 33 s. a. 1525.

[2] According to the Kavanagh pedigree, the abbot had three sons, one of whom was called "Murrough."

[3] See the heading of the Extracts from the Register (E): "Ex registro chartarum monasterii B. Mariae de Duusque et de Valle S. Salvatoris Cisterciensis ordinis Ossoriens: jussu Karuli Kamanach abbatis et conventus descripto 1518."

[4] A pamphlet entitled *Annals of Graig Abbey*, by W. O'Leary (1889), is not intended to be taken as history. It is a picturesque combination of the extracts in EF with imaginative additions.

[5] *Extracts*, &c. (EFL). Perhaps it is significant that it was in this year that Maurice Kavanagh, alleged to be the abbot's son, was executed for murder (see above).

be dyvers Abbayes ajoyning to these Iryshmen wyche do more ayde and supportacon to them than to the Kyng or his subjects, parte agaynst their wyllys, as . . . . . the Abbey of Duske, com. Carlagh . . . wyche may be suppressed and gevyn by our sovereign lord the Kyng to yong lords, knights, and gents out of England, which shall dwell upon the same":[1]

It will be observed that the charge of disloyalty to the Crown is expressly preferred against the monasteries in this recommendation.[2]

Events moved quickly, and the abbey of Duiske was dissolved by Letters Patent of 6th May, 1536, followed by an Act of the Irish Parliament in 1537. Abbot Kavanagh was granted a pension of £10 a year.[3]

The transfer to the Crown of the possessions of the convent was made at Kilkenny on 4th January, 1541, as is set out in the following document, which has been transcribed for us by Miss E. Thompson:[4]—

106.

COM. KYLKENNY.

Possessiones ad nuper monasterium de Duske in comitatu predicto pertinentes.—Extenta omnium et singulorum tenementorum ac aliarum possessionum tam spiritualium quam temporalium, ad nuper monasterium de Duske in comitatu predicto pertinentium, in manibus domini nostri Henrici viij^{vi}, Dei Gratia Anglie et Frauncie Regis, fidei Defensoris, Domini Hibernie, ac in terra supremi capitis Anglicane et Hibernicane ecclesie, per dissolutionem eiusdem nuper monasterii, pretextu sursum-redditionis per abbatem et conuentum ibidem habite, facta apud Kylkenny iiij^{to} die Januarii anno regni regis predicti xxxij^{do}: Coram Antonio Seynctleger milite deputato Domini Regis terre sue Hibernie, et Willelmo Cavendysshe uno auditorum curie augmentationis revenientium corone predicte Domini Regis ac commissionariis ipsius Domini Regis nuper assignatis unacum Thoma Walshe uno Baronum de Scaccario dicti Domini Regis in Anglia, et Johanne Mynne uno auditorum compotorum scaccarii ipsius Domini Regis in Anglia,[5] inter alia ad omnia et singula castra dominia maneria terras et tenementa

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[1] Quoted by Hore, *Tintern Abbey*, p. 72, from the State Papers.

[2] See pp. 136, 150.

[3] Archbishop King's *Collectanea*, p. 360. In 1549 a Pardon was granted to "Charles Kavanagh, late abbot of Duiske" (*Fiants* Ed. VI, no. 348).

[4] State Papers, Ireland, Henry VIII. Portfolios, vol. iii (Public Record Office, London).

[5] Sir *Anthony St. Leger* was Lord Deputy from 1540 to 1546. Sir *William Cavendish* was engaged in the business of taking over monastic property from the year 1530 onward; he was the builder of Chatsworth, the famous seat of the family. Baron *Thomas Walsh* and *John Mynne*, as the king's commissioners, appear in connexion with the transfer to the Crown of several other religious houses in the South of Ireland (see Hore's *Wexford*, p. 146, and *Enniscorthy*, p. 360).

ac ceteras quascumque possessiones predicti Domini Regis infra terram suam Hibernie superuidendum et extendendum per sacramentum Caroli Caverner[1] nuper abbatis predicti monasterii, Hugonis Smythe, Darby Fynne, Edwardi Fytz Tybotbutler, Nicholai Fytz Peers, Thome Connér, Willelmi Ryan, Willelmi Fytz Daly, Donaldi Fytz Peers et aliorum proborum et legalium hominum comitatus predicti: Qui quidem iurati dicunt super sacramentum suum, quod est infra scitum predicti nuper monasterii, una ecclesia cum cymiterio, claustrum pomarium, et gardinum que continent per estimationem duas acras maioris mensure et nihil ualent per annum ultra reparationes ad custus firmarii ibidem sustentandas.

Villata de Duske.—Sunt ibi xxx acre terre arabilis xv acre pasture et xxv acre bosci annui ualoris xl.s. Et quod sunt ibidem iij gurgites[2] anguillarum annui ualoris xiij. s. iiij. d. Quod est ibidem unum molendinum aquaticum et ualet per annum ultra reparationes xl. s. Quod sunt ibidem xxij cotagii pro quibus tenentes non soluunt redditum preter custumas. Pro custumis xij dies aratri uocatas Ploughedayes, xij dies carecte,[3] xii precarias[4] in autumpno, xii dies ad purgandum bladum ac xii gallinas ac de qualibet brasina cervicie unam lagenam melioris cervicie,[5] xii panes uocatas "cakys" et ad festum Natalis Domini unum quarterum carnis bouium et de quolibet grege ouium de numero vii et ultra debet reddere unum ouem pretii viii. d. et sic de quolibet grege porcorum de eodem numero unum porcum pretii viii. d. que custume appreciantur communibus annis ad xviii. s.

Summa extente uillate predicte cum custumis lxj. s. iiii. d.[6]

Villata de Raghendonor.—Sunt ibidem xxx acre terre arabilis, xv acre pasture et xv acre bosci maioris mensure et ualent per annum xl. s. Quod sunt ibidem xviii. cotagii pro quibus tenentes nullum soluunt redditum. Pro custumis xii dies aratri xii dies caruce, xvii precarias uocatas Hokedays[7] in autumno: de quolibet grege ouium de numero vii et ultra unum ouem pretii viii d. Et sic de quolibet grege porcorum de eodem numero unum porcum pretii xii. d. que hic non appreciantur eo quod pertinent firmario eiusdem uillate.

Summa extente uillate predicte patet.

Villata de Ballygan.[8]—Sunt ibidem decem acre terre arabilis et decem acre bosci maioris mensure et ualent per annum—xxvj. s. viij. d.

Villata de Thekerlevan.[9]—Sunt ibidem decem acre terre arabilis quinque acre bosci et quinque acre pasture maioris mensure et ualent per annum—xx. s. Pro custumis iij dies aratri, tres carecte ad ducendum bladum vj pre-

[1] I.e. Kavanagh. [2] Eel-weirs. [3] With the cart. [4] Boon-days.
[5] For every brewing of beer, one gallon of best beer. [6] It should be lxxi. s. iiii.
[7] "Hokedays," i.e. days with the reaping hook, which the tenants were bound to give the landlord at harvest time.
[8] Two or three miles south of Graiguenamanagh, on the Barrow. [9] Tikerlevan.

carias in autumno, vj dies ad purgandum,[1] et vj gallinas que appreciantur ad —iij. s. iiij. d.

Summa extente uillate predicte—xxiij. s., iiij. d.

Villata de Copponaghe.[2]—Sunt ibidem decem acre terre arabilis et decem acre pasture et montane que nuper dimisse fuerunt pro xx. s. per annum, et modo causa guerre et rebellionis de le Kavernaghes et aliorum Hibernicorum iacent uastate et inoccupate.

Villata de Clayncholme.[3]—Sunt decem acre terre arabilis quinque acre pasture et xv acre bosci que ualent per annum—xl. s.

Villata de Kyllen.[4]—Sunt decem acre terre arabilis ix. acre pasture et una acra bosci mensure predicte et ualent per annum xx. s. Quod sunt ibidem iiij^{or} cotagii pro quibus tenentes nullum soluunt redditum et pro custumis iij dies aratri, iij carecte ad ducendum bladum,[5] iiij^{or} precarias in autumpno, iiij dies ad purgandum segetes et iiij^{or} gallinas que appreciantur ad iij. s. viij. d.

Summa extente uillate predicte—xxiij. s. viij. d.

Villata de Garbok.—Sunt ibidem decem acre terre arabilis ix acre pasture et una acra bosci annui ualoris xiij. s., iiij. d. Pro custumis, ij dies aratri, ij carecte ad ducendum bladum, ij precarias in autumpno et ij dies ad purgandum bladum et duas gallinas que appreciantur ad xix. d.

Summa extente uillate predicte—xiiij. xi. d.

Villata de Moynenetalan.—Sunt ibidem decem acre terre arabilis viij acre pasture et ij acre bosci maioris mensure et ualent per annum—xx. s.

Grangia de Woode.[6]—Quod . . . . . tenet ibidem xxxv. acras terre arabilis unam acram prati, iiij acras subbosci et unam acram more et reddit annuatim xx modos frumenti et xx. modos auenarum pretium cuiuslibet modi ij. s. attingentes ad iiij. li. pro custumis ij dies aratri, ii carecte ad ducendum bladum, ij precarias in autumpno, ij dies ad purgandum bladum et duas gallinas que appreciantur ad—ij. s. ij. d.

Summa extente uillate predicte—iiij li. ij. s. ij. d.

Grangia de Willelmo Carraghe.—Sunt ibidem lxxv. acre terre arabilis, et quinque acre more et pasture maioris mensure et ualent per annum—lxvi. s. viij. d. Sunt ibidem xi cotagii pro quibus tenentes nullum soluunt redditum ; pro custumis iiij dies aratri, iiij carecte ad ducendum bladum, xii precarias in autumpno, xii dies ad purgandum bladum, et xii gallinas que appreciantur ad vij. s. viij. d.

Summa extente uillate predicte—lxxiiij. s. iiij. d.

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[1] I.e. for cleansing or weeding the crops. [2] Coppenagh. [3] Glancome.
[4] Killenny (?). [5] Three days with the cart for carrying corn. [6] Grange Silvae.

Grangia de Downyng.[1]—Sunt ibidem lvj acre terre arabilis, iii acre pasture et una acre more et ualent per annum—liij. s. iiij. d. Quod est ibidem unum molendinum aquaticum et ualet per annum ultra omnimodas reparationes decem picas frumenti et decem picas avenarum pretium cuiuslibet pice ij. s. attingentes ad—xl. s.

Summa extente uillate predicte cum molendino—iiij. li. xiij. s. iiij. d.

Villata de Old Abbey.[2]—Sunt ibidem xxxviij acre terre arabilis ij acre bosci, una gurges anguillarum et unum molendinum aquaticum in occupatione Caroli Cauerner nuper abbatis monasterii de Duske. Reddendum inde per annum—xx. s.

Grangia de Hanamoltyn.[3]—Sunt ibidem lxxvj acre terre arabilis iiij acre pasture annui ualoris—cvj. s. viij. d. Quod est ibidem unum molendinum aquaticum et dimidia gurges anguillarum annui ualoris ultra omnimodas reparationes—cvj. s. viij. d.

Summa extente uillate predicte cum molendino—xli. xiij. s. iiij. d.

Grangia de Tollaghanny.[4]—Sunt ibidem iiij^{xx} acre terre arabilis xj acre pasture, viij acre bosci et una acra more et ualent per annum iiij li. Sunt ibidem xij cotagii pro quibus tenentes nullum soluunt redditum: pro custumis viij dies aratri viij carecte ad ducendum bladum, xvj. precarias in autumpno xvj dies ad purgandum bladum et xvj gallinas que appreciantur ad x. s. viij. d.

Summa extente graungie predicte cum custumis—iiij li. xv. s. viij. d.

Comitatus Catherlaghe.

Certe terre Ingraungie Wate.—Sunt ibidem decem acre terre arabilis et quoddam fundum unius molendini aquatici nuper annui ualoris vj. s. viij. d., et modo causa guerre et rebellionis de le Cauerners iacent uastate et inoccupate.

Comitatus Wexford, *Fassaghventree.*

Villata de Garranahell.[5]—Sunt ibidem xxx acre terre arabilis et xxx acre pasture nuper annui ualoris xx. s. Et modo causa guerre et rebellionis de le Cauerners, Towles, Byrnes et aliorum Hibernicorum iacent uastate et inoccupate.

Villata de Kyllanne.—Sunt ibidem xxx acre terre arabilis et xxx acre pasture nuper annui ualoris xx. s. Et modo causa guerre et rebellionis predictorum Hibernicorum iacent uastate et inoccupate.

Villata de Kyllalsok.[6]—Sunt ibidem decem acre terre arabilis viij acre

[1] Doninga; cf. p. 99. [2] Killenny. [3] Annamult. [4] Tulachany.
[5] Garraun, in Bantry. [6] Kilmallock, in Ballaghkeen S.

pasture et montane et due acre bosci nuper annui ualoris xx. s. Et modo causa predicta iacent uastate et inoccupate.

Villata de Rawale.[1]—Sunt ibidem x. acre terre arabilis, ix. acre pasture et una acra bosci nuper annui ualoris—xiij. s. iiij. d. et modo causa supradicta iacent uastate et inoccupate.

Villata de Raywarran.[2]—Sunt ibidem decem acre terre arabilis et una acra bosci nuper annui ualoris xiij. s. iiij. d. et modo causa supradicta iacent uastate et inoccupate.

Villata de Ballylene alias Ballyssylley.[3]—Sunt ibidem decem acre terre arabilis et decem acre pasture que nuper dimisse fuerunt pro xij s. iiij d. per annum et modo causa predicta uastate et inoccupate.

Rectoria de Duske.—Quod rectoria predicta appropriata fuit predicto nuper monasterio et ad manus regis per dissolutionem eiusdem super monasterii deueniebat et colligitur annuatim per vij picas frumenti et viij picas auenarum mensure Kylkenny uidelicet qualibet pica continente xxiiij lagenas[4] pretium cuiuslibet pice unocum alio ij. s. iiij. d. Sic dimissa Hugoni M'Gowan reddendum per annum ultra alteragium pertinens ad curatum—xl. s. Quod donatio et aduocatio uicarie ibidem ad dominum regem per dissolutionem eiusdem nuper monasterii spectent.

Quod decima garbarum[5] uillate predicte colligitur annuatim per viij copulas[6] pretio copule xiij. s. iiij. d. in toto—cvi. s. viij. d.

Decima uillate de Thokerleuana.[7]—Decima garbarum uillate predicte colligitur annuatim per dimidium copule pretium—vj. s. viij. d.

Decima uillate de Copponagh.—Quod decima eiusdem uillate nuper ualebat xx. s. et modo causa guerre et rebellionis de la Cauernars iacet uasta.

Decima uillate de Glancome.—Quod decima garbarum eiusdem uillate nuper ualebat xx. s. Et modo iacent uastate causa rebellionis predictorum Hibernicorum.

Decima uillate de Garwok.—Quod decima eiusdem uillate nuper ualebat per annum xx. s. Et modo causa rebellionis predicte non ualet per annum ultra xiij. s. iiij. d.

Decima uillate de Moyntalyn.—Quod decima eiusdem uillate nuper ualebat per annum xx. s. Et modo iacet uastata causa predicta.

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[1] Rahale, in Ballaghkeen S. [2] Raheenagurren, in Ballaghkeen N.
[3] Ballysillagh, in Ballaghkeen S.
[4] I.e. "8 pecks of Kilkenny measure, each peck containing 24 gallons."
[5] Sheaves. [6] Bundles. [7] Tikerlevan.

Decima Graungie de la Woode.—Quod decima garbarum eiusdem grangie colligitur annuatim per decem picas frumenti et decem picas auenarum mensure Kylkenny predicte, pretium cuiuslibet pice unocum alio ij. s. iiij. d. attingente ad—xlvj. s. viij. d.

Decima Graungie de Willm Carraghe, cum decima Grangie de Downen.—Quod decima garbarum graungie predicte colligitur annuatim per xl. picas frumenti et xl. picas auenarum mensure predicte pretium cuiuslibet pice unocum alio ij. s. iiij. d. attingente ad—iiij li. xiij. s. xiiij. d.

Decima villate de Old Abbey.—Quod Carolus Cauernar nuper abbas dicti nuper monasterii tenet decimam de Old Abbey predicta et reddet per annum —xx. s.

Rectoria de Hannamolte.[1]—Quod rectoria predicta appropriata fuit ad dictum nuper monasterium et ad manus domini regis per dissolutionem eiusdem nuper monasterii deuenebat et ualet per annum in decima granorum xxx picas frumenti et xxx picas auenarum, pretio cuiuslibet pice, uno cum alio ij. s. iiij. d., dimissa predicto Hugoni M'Goodwyn reddendum per annum vii. li. Quod alteragium pertinet ad curatum ibidem.

Rectoria de Tallaghange.[2]—Quod rectoria predicta ad dictum nuper monasterium spectabat et ad manus domini regis per dissolutionem eiusdem nuper monasterii deuenebat et ualet per annum in decima granorum ultra alteragium pertinens ad curatum ibidem, xxx picas frumenti et xxx picas auenarum mensure predicte pretium cuiuslibet pice ij. s. iiij. d. attingente ad—vij. li.

Rectoria de Ballyle.—Quod eadem rectoria ad dictum nuper monasterium spectabat et ad manus domini regis per dissolutionem predicti nuper monasterii deuenebat et ualet per annum in duabus partibus decime granorum ultra tertiam partem et alteragium pertinens ad curatum ibidem—xl. s. Quod donatio et aduocatio uicarie predicte per dissolutionem eiusdem nuper monasterii ad dominum regem spectant.

COMITATUS CORK.

Villata de Ballygarke.—Sunt ibidem xxx acre terre arabilis et pasture nuper annui ualoris xxii. d. sterlyng, et modo iacent uastate causa rebellionis inhabita† ibidem.

Villata de Nevenyff.—Sunt ibidem lx acre terre et pasture nuper annui ualoris x. s. et modo non ualent ultra—ij. s. sterling.

Rectoria de Kylcombre.[3]—Eadem rectoria ad predictum nuper monasterium pertinebat ac ad manus domini regis deuenebat per dissolutionem eiusdem

[1] Annamult. [2] Tulachany. [3] Kilcummer, in the barony of Fermoy, co. Cork.

nuper monasterii et nuper ualebat annuatim lx. s. sterling et modo iacet uastata causa predicta.

Rectoria de Kylcromglassey alias ———— .[1]—Eadem rectoria ad dictum monasterium pertinebat ac simili modo ad manus domini regis deuenebat nuper annui ualoris xx. s. sterling. Sed modo causa rebellionis inhabitantium ibidem non ualet per annum ultra—x. s.

Summa totalis extente omnium possessionum tam spiritualium quam temporalium ad dictum nuper monasterium pertinentium ultra terras uastatas—lxxvj. li. xij. s.v d.

The following additional memorandum of the goods belonging to the monastery must be quoted here:—

Account of William Brabazon,[2] Under-Treasurer of Ireland, of goods and chattels of the late monasteries of Bectyff, Tynterne, Dunbrody, Baltyngglas, and Duske, dissolved lately by letters patents of 6 May, 28 Henry VIII, and on the authority of Parliament held at Dublin the same year.[3]

Idem reddit compotum . . . . . .
de iiij li. xiij. s. iiij. d. de pretio quinque uaccarum et unius paris organorum parcella bonorum et catallorum ad predictum nuper monasterium de Duske tempore dissolutionis eiusdem pertinentium que post predictum festum[4] ad manus ipsius computantis deuenerunt sicut continetur ibidem.[5] De pretio aliquorum aliorum bonorum seu catallorum ad predictum nuper monasterium tempore predicto pertinentium non respondet. Et quod cetera bona et catalla, ad manus Iacobi Comitis Ormondie et Ossorie deuenerunt. Ita quod nulla alia siue plura bona seu catalla ad idem nuper monasterium tempore predicto spectantia preterquam bona et catalla superonerata. Ac quandam campanam in campanili ecclesie ibidem existentem, de qua idem computans inferius respondit, ad manus ipsius computantis deuenerunt, ut dicit super sacramentum suum ac sicut continentur ibidem. De quibusdam residuis bonorum et catallorum predictorum aut de pretio eorundem preterquam campanam predictam idem comes est domini regi responsurus.

In the same year (1541) in which the abbey lands were transferred to the Crown, the King gave a lease of them for twenty-one years to James Butler, ninth Earl of Ormonde,[6] whose services to the State had been conspicuous.

[1] The other name is not given.

[2] Sir *William Brabazon*, Vice-Treasurer and Lord Justice, was one of the king's principal agents in the dissolution of the monasteries. It was he who finally subdued the Kavanaghs in 1550.

[3] State Papers, Ireland, Henry VIII, portfolios, vol. ii.

[4] St. Michael mentioned in the head of the account.

[5] A book of accounts mentioned earlier in this account.

[6] As we have seen, he was grandnephew of the abbot, Charles Kavanagh (p. 154).

He died of poison in London in 1546, and the lands of the convent came into the hands of his fifth son, James Butler.

The transfer of the abbey lands to the Crown was again legalized and confirmed in 1556 by 3 & 4 Philip and Mary, ch. 8.

In 1559 James Butler, the second lay owner, petitioned[1] the Queen for the renewing of the lease of the possessions of the abbey, which had been given to his father twenty-one years before, and it was granted on 26 Jan., 1561, there being leased "the lands of Dusk, Rahindowner, Ballyogan, Copanagh, Teghkyrlevan, Moyntyneillany, Gleawne, Cownie, the upper grange called the Wood Grange, the nether grange called William Curragh's grange, and Downe-Inney, and all lands in Fassagh Bentrie in the counties of Wexford and Carlow, leased 24 Jan., xxix Hen. VIII, to James, lord Butler, father of the present lessee: to hold for twenty-one years at a rent of £15 during the life of the lessee, and of £25 afterwards"; with certain reservations, two of the conditions being that the buildings were to be maintained, and that the lands were not to be set to any persons not English by both parents.[2]

This seems to be the place at which mention should be made of a story that has received wide circulation, as to the massacre of some of the monks of Duiske Abbey, in the reign of Elizabeth. As we have seen, the abbey was dissolved in 1537; but it is possible that here, as in some other instances, members of the community continued to inhabit the old buildings for some years after their lands had been taken from them. The story is told by a Roman Catholic writer, Philip O'Sullevan Beare, who left Ireland for Spain in his youth, and was published by him in 1629.

"Situated on the river Barrow," he says, "there is a noble monastery of the order of St. Bernard, called in Irish *Graigue*, but known to those who speak Latin as *Jerpoint*, from the nearest bridge. The robbers go to seize it. As they draw near, twelve religious go out to meet them, in ecclesiastical array.[3] But when they were bidden by the wicked men to put off their sacred vestments, and to yield to Elizabeth, Queen of England, their superior[4] (he was the prior, for the abbot had died a few days before), answered: 'That this could not be done, if the faith which they had pledged to God, to the Virgin Mother, and to St. Bernard, and the Christian piety which they professed, were to be kept; and that they would not violate their faith and Christian piety.' And when the others also had added their assent to his decision, they were all slain together."[5]

[1] Cal. of State Papers, Ireland, 16 July, 1559.
[2] *Fiants* Elizabeth, no. 290.
[3] In ecclesiasticam pompam instructi.
[4] Praefectus.
[5] *Patritiana Decas* (Madrid, 1629), by P. O'Sullevan Beare, fol. 163 b. I have given a quite literal translation of his Latin.

The writer was not a contemporary, and he was evidently not acquainted with the locality, for he confuses the abbey of Graigue with that of Jerpoint. But there may be some truth in his melancholy tale, although we can find no other authority for it.[1] Local tradition, indeed, now points to a place at Graigue called the "Black Bout" as the scene of the massacre;[2] but whether the tradition is genuine, or whether it has grown up of recent years, it is not easy to determine. One thing, however, is plain; namely, that the date which has been assigned to the massacre in modern books is an impossible one.

As early as 1649, the story was reproduced from O'Sullevan's work by John Hartry, in his *Synopsis* of famous Irish Cistercians.[3] This writer, while he silently omits O'Sullevan's blunder about Jerpoint, adds on his own account that the abbot who had "died a few days before" the massacre was Charles Kavanagh—"qui obiit anno circiter 1580 et in Veteri Monasterio sepelitur."[4] We have already seen (p. 153) that Stanihurst, writing in 1577, speaks of abbot Kavanagh in the past tense, as one who was dead some time before he wrote, so that Hartry's guess at the date (which has been followed by many writers)[5] is at once disproved. Indeed, as Charles Kavanagh witnessed Donnell Reagh Kavanagh's charter in 1475, and became abbot in 1501 or 1502, it is plain that the date of his death cannot be much later than 1558, even if we allow him the hundred years of life of which Stanihurst speaks. Stanihurst is the earliest and the most trustworthy authority for abbot Kavanagh, and his report that the abbot "flourished in the year 1550" evidently means that the old man was alive at the date, the period of his greatest activity being, as we know, between 1501 and 1537, when his monastery was dissolved and he was pensioned.[6]

If, then, we are to fix a date in the reign of Elizabeth for this sad business, it must be as early as possible after her accession; and it is not improbable that when James Butler, the second lay owner, obtained from the Queen a renewal of his lease in 1561,[7] he forthwith set himself to enforce his legal

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[1] Henriquez does not mention it in his account of the Cistercians who suffered for their faith, and he is an earlier writer than O'Sullevan Beare.

[2] This is stated by Mr. O'Leary in his paper on the Abbey of Graiguenamanagh (Journal R.S.A.I., 1892, p. 240 n.)

[3] See D. Murphy, *Triumphalia sanctae Crucis*, p. 249, for a reprint.

[4] It is likely that Hartry is correct as to the place of burial being the *Vetus Monasterium*, i.e. St. Mullin's, on the Barrow, for there was a Kavanagh family burying-place there.

[5] E.g. by Fr. Denis Murphy in his work *Our Martyrs* (p. 154), who prefixes to his account of the massacre the date "1584 (?)."

[6] Dugdale (*Monasticon*, vi, 1134) distinguishes Caher or Charles Kavanagh who became abbot in 1501, from Charles M'Murrough Kavanagh who in 1537 received his pension as the last abbot. But there is no ground for this distinction, and no hint of it anywhere in the records.

[7] P. 162.

rights of possession, with fatal consequences for the monks who resisted his agents.

However this may be, James Butler was not content with the lease which he got in 1561, and in 1566 he petitioned the Crown for a fee-farm grant of the abbey lands.[1] The petition was granted, and letters patent were passed accordingly.[2] But the petitioner died shortly afterwards, and in 1567 the grant was made to his son, also named James Butler, of the lands as mentioned in the lease of 1561, "besides the lands of the grange of Hanumolt, the grange of Tulaghanny and land, an eel-weir, and a water-mill in Old Abbaye, alias Shanmanister, co. Kilkenny, . . to hold in fee farm for ever by the service of one-twentieth part of a knight's fee, at a rent of £41," curates to be maintained in the churches on the property.[3]

This James Butler, the younger, of Duiske, died without issue, and the abbey lands reverted to his uncle Thomas, tenth earl of Ormonde, who conveyed them in 1597 to his illegitimate son, Piers Butler.[4] This Piers Butler died in 1601, and was succeeded by his son, Sir Edward Butler,[5] who became Viscount Galmoy in 1646.[6]

A document copied for this owner out of the "Ancient Book of Graigue," which gives the boundaries of Tulachany, an estate forming an often-mentioned and valuable part of the property of our abbey, will conclude our collection of the muniments of Duiske.

It is written in a seventeenth-century hand, and is entitled:—

107.

The true coppie of the mearing of Grangtulleghan, coppied out of the Auncient Book of Graigy, and translated into English, which book remayneth with Sir Edward Butler.

By beginning from Luiskenn Patrick (1) by the Dyke w^ch^ leadeth even to the White thorne of the Court otherwise called Skeghne Corte (2) and there beginne to lie three Lords that is to say Gerald FitzGerald, Baron Commerford, and the Abbot. Thence passing by the wall or dyke which leadeth neere Gortenegh and Ranelesk (3) and from thence to the moore or bogg belonging

[1] *Cal. State Papers*, 31 July, 1566.

[2] Morrin's *Cal. Patent Rolls*, 15 Jan., 1567.

[3] *Fiants* Elizabeth, no. 1175, 8 Oct., 1567; cf. *Cal. State Papers*, 10 Aug., 1567.

[4] In *Fiants* Elizabeth, no. 6441, 22 Sept., 1600, we have a "Pardon" for this Piers Butler.

[5] In an Inquisition held at Kilkenny, 19 Sept., 1607, Edward Butler de Oldabay (i.e. Old Abbey or Killenny) claimed "villam et terram de Garneirdden ut parcellam abbatiae de Dusk."

[6] A monument to Sir Edward Butler, Viscount Galmoy, is still extant, inserted in the wall of the Vestry of the Roman Catholic Church of Graiguenamanagh.

to John Fanning and following the meare by passing by the sayd moore or bogg w^ch^ divideth Ballyburr (4), by leaving Mone Edebban (5) on the monkes part and from thence passing by the Dyke w^ch^ is called Lysbryan (6), and there the moncks have one acre of land granted unto [them] in honour of the Holye Crosse (7) in fee from Ballyburre and following the meare w^ch^ is called Lysbrian even to the Kings highe waye (8) and following that sayd highe waye unto the foord called Bellatcallye (9), and there ascending by the little brooke, unto the foord called Aghtolloghan (10) and there dividing w^th^ the Baron Lyster . . . St Leger and from thence ascending by the little brooke or water Naghpale (11), by leaving the wood w^ch^ is commonly called Keylmayne (12) on the moncks part, and then ascending through the marishe betweene Clonedauenemaunagh (13) and Roseneagh belonging to the Baron Lyster . . . St. Leger and from thence leading into Dyrryrathdauton (14) and there beginning by the water w^ch^ passeth from out of the bogg lying neere Dyrryrathdauton on the East syde dividing w^th^ Ballycallan from thence following the same water even unto Coulcoyle (15) and there beginne to be three Lords, whereof every one maye be in his owne Lordshippe (16), that is to saye the Earle of March, Baro Forestall and the Abbot of Dwyske, and passing from the same water unto the little brooke descending from the frechould of Forestall (17) and following this water even to the Dyke rysing out of the aforesayd little river dividing w^th^ the towne commonly called Dammagh and passing by that dyke into the wood called Enaltagh (18) and there the moncks have one acre of moore . . . . . called Monemaistyne (19) and that wood is common betwixt the Viscount Wale and the Abbot and convent, and there following the water rising on the other part of that wood on the south syde into the yellowe foord, otherwise called Aghbuy (20) from thence dividing with Ballybrowne (21) and from thence into the black foord, and from the black foord (22) through the water into Lough Enabb and there following the wall rising from Lough Enabb (23) into Baneard (24) and from Baneard by the dyke even to Rahynneuennoge (24) and from thence by the Dyke passing neere Banog-Colletan (24) and from Banog Colletan even to Gortenardbegg (24) and from thence by the Dyke even to Coullycabban (24) and from there to Leagan (25) and from thence by the dyke before named Luiskean Patrick and all the lands w^ch^ are contayned between these bounds, are belonging to the moncks.

For the annotations upon this document, which follow, we are indebted to the exact topographical knowledge of the Rev. Dr. Carrigan, whose *History of the Diocese of Ossory* we have frequently quoted.

(1). This is the well-known rock beside the public road from Kilkenny to Kells, in the townland of Kilmogg or Racecourse, and close to the bounds of the townland of Knocklegan. In later times it was known as GLÚIN-PHÁDRAIG, or St. Patrick's Knees, because it was supposed to bear the marks of the saint's knees as he knelt thereon in prayer. From a whitethorn growing over the rock and bearing *ex votos* of pieces of cloth, linen, &c., the spot is now always called "Patrick's Bush."

(2). The site of Sceach-na-Cúirte, or Bush of the Court, was at the point of meeting of the three townlands of Oldtown (belonging to Fitzgerald of Burnchurch), Newlands (belonging to Comerford of Ballymack), and Baunlusk (belonging to the abbot of Duiske).

(3). Now the townland of Baunlusk.

(4). A parish in the barony of Shillelogher, and consisting of the two townlands of Ballybur Lower and Ballybur Upper.

(5). That is, Móin-fhada-bhán, the long, white bog. The name is now probably obsolete.

(6). Lios Bhriain, Brian's Fort. This name, now remembered only under its Irish form, *Lis-Vrieeun*, is applied to a 12-acre field in Ballybur, between Ballybur castle and the Callan road; but evidently Lios Bhriain was originally of larger extent.

(7). The Holy Cross was the Patron of the ancient chapel and parish of Grange.

(8). The public road from Kilkenny to Callan.

(9). The name is still preserved under the form *Auch-chéllia*, and gives name to "*Auch-chéllia* bridge" on the Callan road, at the meeting of the townlands of Ballybur and Church Hill. On the Ordnance Map this bridge appears incorrectly as "Aughcoultagh Bridge."

(10). Now Black Stick Bridge, and, in Irish, *Auch-a-coldha-dhuv*, i.e. the Ford of the Black Stick. The old name, Aghtolloghan, or Ford of Tullaghany, is no longer remembered.

(11). The stream flowing under Black Stick Bridge.

(12). Elsewhere written Kylvyan, i.e. Coill-mhadhain, Middle Kyle or Wood. This wood was in either Church Hill or Grange, about where both townlands meet the townland of Grove.

(13). Cluain-damh-na-manach, or the Ox-Plain of the Monks, also mentioned as Clondutfe-na-ma: nagh, and Clundaf, is identical more or less with the townland of Grange.

(14). Now apparently the townland of Rossdama, which here bounds Toberbreedia, formerly part of the townland of Ballycallan.

(15). That is, Cúil-chuill (pronounced *Cool-chigh*), the Hazel Angle. The point of the angle of Cúil-chuill juts out into Ballycallan townland, about thirty perches to the north of the townland of Toberbreedia.

(16). Nasciv, Ballycallan, the property of the Earl of March (or, more correctly it would appear, of his relatives the Despencers), Balleven, as part of Ballyfrunk, the property of Forrestall of Kilfeagh, and Rossdama, belonging to the Abbot of Duiske. At present Balleven does not quite join Rossdama, being separated from it for a distance of about fifty perches of a moor by the townland of Ballycallan; but it is not unlikely that, in the course of several centuries, there was some slight change of boundaries here.

(17). That is, the stream running through Ballyfrunk and Balleven, and then dividing the townland of Damma, in the parish of Ballycallan, from Rossdama.

(18). Coill-an-Fhaltaigh (pronounced *Kwee-an-Awltha*, the wood of Vale, Wade, or Wall, the ancient lord of Castleinch or Inchiologhan. This wood, in part at least, is identical with the present townland of Woodlands, in Irish, Baile-na-coille, in the parish of Castleinch, and stretching along the north-east border of the townland of Grange.

(19). MÓIN-MHAISTĬN, the Mastiff's Bog.

(20). The Aghbuy (ATH-BUIDHE), or yellow ford or river, separated Raheenduff in Grange parish from Gurrawn and Brownstown in the parish of Castleinch.

(21). In Irish, BAILE-A'-BHRÚNAIGH, now the townland of Brownstown.

(22). The Black ford (ATH-DUBH) was evidently where the Callan road passes over the stream separating the townland of Grangecuffe and Raheenduff from the townland of Brownstown; and, doubtless, on inquiry in the locality the old name could be easily recovered.

(23). LOCH-AN-ABBAIDH, the abbot's lough or pond, on the bounds of the townlands of Rathaleek and Grangecuffe.

(24). On the boundary between the townland of Kilmogg or Racecourse and the small townland of Knocklegan, but cannot at present be identified.

(25). Leagan may here mean the townland of Knocklegan (CNOC-A'-LIAGÁIN), the hill of the LIAGÁN or pillar stone; or, it may mean the great LIAGÁN now resting against a wall or fence close to Patrick's Bush, or GLÚIN PHÁDRAIG, otherwise Luiskean Patrick.

The lands of which there is question here are coextensive with the civil *parish* of Grange, in the barony of Shillelogher, and county of Kilkenny. In the *Red Book of Ossory* the parish of Grange appears as Tullachany, Tillaghany, and Tylahany; in less ancient records it is also called the Grange of Tullaghany and Grange Tullaghan. The different townlands into which it is now divided are: Baunlusk, Church Hill, Grange, Grangecuffe, Kilmogg or Racecourse, Raheenduff, and Rossdama. The area of the parish is 1,934 A. 2 R. 24 P. statute measure.

The original name of the parish may be TULCHÁN, a green hillock or mound, but it seems more likely to have been something like TULCHANNA, that is, the place of the green hillocks. The only Irish name by which it is now remembered is PARRÁISTE-NA-GRÁINSIGHE, the parish of GRÁINSEACH or Grange.

The Irish forms of the townland names in the parish are:—

Baunlusk: BÁN-LOISGTHE (pronounced *Bawn-lushkaha*), the Burned Bawn or yard.

Church Hill: CNOC-A'-TEAMPUILL, Hill of the Church.

Grange: GRÁINSEACH (pronounced *Grawnshach*), the Grange or Farm-yard [of the Monks].

Grangecuffe: GRÁINSEACH-Cuffe, Cuffe's Grange.

Kilmogg or Racecourse: CILL-MAGAIDH (pronounced *Kilmogg*, a local shortening of Kilmogga, which is the correct sound), the Church of St. Magadh.

Raheenduff: RAITHÍN-DUBH, the Black little rath or fort.

Rossdama: ROS-DÁ-MAGH (pronounced *Russ-dhaw-mă*), the Promontory or Wood of the Two Plains.

The conventual estates remained in the family of Sir Edward Butler until 1697, when they were forfeited, as the third Viscount Galmoy took the side of James II in the Williamite wars. In 1703 the abbey lands were purchased at the sale of forfeited estates in Chichester House by James Agar, esq., of Gowran, co. Kilkenny. We need not trace their history further.[1]

[1] A full account of "the Butlers of Duiske Abbey," by Rev. James Hughes, is printed in the *Journal R.S.A.I.*, vol. x, p. 62 ff.

The precise date at which the title-deeds, including the charters printed in this volume, were placed in the Muniment Room of the Ormondes at Kilkenny Castle, cannot be ascertained: but it is probable that most of the charters were handed over to James, ninth earl of Ormonde when the lands were leased to him after the dissolution of the abbey.[1]

APPENDIX A.

The Conventual Buildings of Duiske.

By the late Robert Cochrane, F.S.A., F.R.I.B.A.[2]

The abbey church of Graiguenamanagh was built on the typical Cistercian plan, and followed very closely the ritual arrangement of buildings adopted by that Order. I have been able to prepare the accompanying ground-plan by the help of the indefatigable explorer of the ruin, Mr. Patrick O'Leary, who for years past has been engaged in tracing out the site; and I have obtained from Mr. J. G. Robertson some measurements of the walls of transepts and side chapels, as they stood in 1813, made by his relative, the late William Robertson of Kilkenny. Considerable portions of the walls have disappeared since that date.

The Abbey Church.

The *Church* comprises a nave 130 ft. in length, and 29 ft. in width, with side aisles; full length of nave, 13 ft. in width, divided from the aisles by a series of pointed arches, seven in number, supporting side walls containing the clerestory windows, which are round-headed couplets. There are also tower, choir, transepts, and side chapels.

The piers of the nave arches are rectangular in plan, with chamfers at the angles, and have corbels introduced in the thickness of the piers, from which a slender shaft about 3 ft. in height rises, the capital supporting a moulding in the soffit of the arch.[3]

[1] See p. 161.

[2] By the kind permission of the Council of the Royal Society of Antiquaries of Ireland, this account of the remains of the conventual buildings is reprinted from the Society's *Journal* for 1892, pp. 243-247. It provides a clear and full description of the abbey and its precincts from the hand of a learned architect and antiquary, Dr. Robert Cochrane, to whom Irish archaeology owes much. The plan of the buildings, as drawn out by Dr. Cochrane, is specially valuable (Plate V).

[3] The details of mouldings have Early English features, but do not show the deep hollows peculiar to that period. They consist, for the most part, of rounds and fillets, simple, but effective, and the work of men who know how to restrain their powers, rather than give free rein to their ideas. The piers have the angles chamfered at the base: the chamfer is stopped at the springing of the arch by simple foliage carving, such as a single leaf, and from this springs the arch moulding before described, without the intervention of a capital. The capitals of the shafts in the thickness of piers have Early English capitals with deep-cut ornament and foliage carving. [Some illustrations of the ancient tiles found at Graiguenamanagh Abbey are given in Mr. O'Leary's paper, *Journal R.S.A.I.*, vol. xxii, p. 237.]

The west window of nave is in three separate lights, the jambs of each splayed so as to meet internally, with mouldings over the arches springing from capitals. The centre light has a pointed arch, but the two side-lights are semicircular-headed, indicative of the Transitional Period. The west ends of the aisles had tall, narrow lights, with pointed heads.

The *Tower* was in the usual position at the intersection of nave and transepts, and was carried on four massive piers with clustered shafts and capitals. The dimension of the tower was 29 ft. square, in clear of the supporting walls. Local tradition has it that this tower rose to a height of 140 ft.; but this would not be in accordance with the ruling design of the Cistercians, who adopted low square towers in their churches. Mr. O'Leary says the upper part of the tower was octagonal.[1]

The *Choir* measured 45 ft. in length, by 29 ft. 6 in. in breadth, had a groined roof in three compartments, and was lighted by two windows on north and two on south side, narrow and lofty. The east window was divided into three lights.

There are no indications to show how far the ritual choir extended, but it is probable it terminated at the western line of tower.

The north and south *Transepts* measure each 40 ft. 6 in. by 29 ft., and there were three side chapels east of each transept in the position indicated on plan, the walls of which were in existence in 1813, when measured by Mr. Robertson. This arrangement and number of side chapels are found in Cistercian houses of the larger type, as at Dunbrody; two side chapels off each transept being more commonly met with, as at Jerpoint, Holycross, Fountains, &c.

The total width of the church across the transept was 110 ft. in the clear. The total length of the structure measured east and west on its axis through the nave was 216 ft. 4 in. in outer measurement, and as regards size it was inferior to few similar edifices in this country, while as to completeness of ritual and conventual arrangement, it was probably the most perfect of the Irish houses of the Order.

The stairs leading to the tower were situated in the N.E. angle of the north transept; the passage leading from stairs to tower was formed in the thickness of the east wall of this transept.

The night stairs are placed as usual at the S. W. angle of the south transept at a distance of 6 ft. 6 in. from west wall of transept; the ope of the stair door in wall is 4 ft. 10 in. in width. There is a passage leading from the southern side chapel to the vestry. The night stairs gave access from the dormitories for the convenience of the monks who had to enter the church at midnight in the performance of the duties of the choir as prescribed in the ritual of the Order.

The remarkable similarity that exists between the abbey church of Graiguenamanagh and the Cistercian church recently excavated at Strata Florida in Cardiganshire, so ably and fully described by its explorer, Mr. Stephen W. Williams, F.S.A., F.R.I.B.A.,[2] not only as regards the internal arrangements, but

[1] [That the tower was octagonal is stated in Grose's *Antiquities of Ireland* (1792), as well as in Seward's *Topographica Hibernica* (1795). Under "Graiguenamanagh," Seward has the following note:—"Here are the ruins of a fine abbey, the octagon tower of which fell down in 1744, an event to be regretted, because it was one of the most beautiful religious structures in the kingdom. The embellishments of this abbey are curious, and the building was formerly of a large extent."]

[2] *The Cistercian Abbey of Strata Florida* (1889). [Strata Florida (Strathfour) obtained

also in the approximation of the principal measurements, would seem to indicate a closer connexion than is usual between the two foundations, closely as all Cistercian houses were connected with each other. The plans of choir, tower, transepts, side chapels, nave, and aisles are in all their principal features almost identical in these Welsh and Irish Cistercian abbeys, and it would be difficult to find any other two religious houses so much alike in this respect. A few of the dimensions of each are here given :—

The total length of Graiguenamanagh is 216 ft. 4 in., and the total length of Strata Florida is 213 ft. (The latter measurement is clear of external walls.)

Size of Nave, Graiguenamanagh, . . .	130 ft. × 29 ft.
,, ,, Strata Florida, ...	128 ft. 6 in. × 28 ft.
Width of Aisle, Graiguenamanagh, . . .	13 ft.
,, ,, Strata Florida, . . .	12 ft. 6 in.
Square of lantern of Tower of Graiguenamanagh,	29 ft.
,, ,, ,, ,, ,, Strata Florida, .	28 ft.
Breadth across Transepts, Graiguenamanagh, .	110 ft.
,, ,, ,, ,, Strata Florida, . .	117 ft. 3 in.
Size of Choir, Graiguenamanagh, . . .	45 ft. × 29 ft. 6 in.
,, ,, Strata Florida, ...	52 ft. 6 in. × 28 ft.

The number of arches separating nave from aisles is seven in each case.

The Conventual Buildings.

As regards the conventual buildings of Graiguenamanagh, they are situated to the south of the church, the position usually followed save in a few instances, as in Tintern, Melrose, Beaufort, &c., where, owing to the exigencies of the site, the cloisters are placed north of the church, but such cases are the exception.

The *Sacristy* was approached from a side chapel: it is 15 ft. by 24 ft.; it was vaulted, and lighted by a window in the east, following closely the general plan elsewhere.

The next apartment is 24 ft. by 10 ft. 3 in., and may have been a penitential cell, or it may have been a store-room or *Treasury*. Similar apartments elsewhere have been supposed to be the morgue or dead-house. There is nothing in its construction calculated to throw light on the question as to which of the foregoing purposes it may have been used for.

Adjoining this we find the *Chapter-room*, an apartment 24 ft. by 20 ft. There can be no doubt as to its use, as it presents the characteristics by which such a room is invariably distinguished. We have the large doorway opening into the cloisters, with two side lights, which would have left almost the whole of the west end open. In the centre of the room we mark the position of the usual central

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a Confirmation from King John on 11 April, 1200, given by the hand of Hubert Walter, archbishop of Canterbury; and it is worth noting that among the witnesses was William Marshal the elder, the founder of the abbey of Duiske. Mr. Williams also provides the information that a William le Gras witnessed a Strata Florida Inquisition at Montgomery in the year 1252. These are additional indications which fall in with Dr. Cochrane's opinion that there was a close connexion between the abbeys of Duiske and Strattlour.]

column which generally carried a rich vaulted roof, and did so in this case, and the apartment was more highly ornamented than any other portion of the buildings. The door in the east wall, opening into a larger apartment called the *Scriptorium* on plan, is a peculiar feature, and seems to call for some explanation, as it occupies the position in which we would expect to meet the seat of the Abbot, who was seated at the east end, with the members of the Chapter ranged in order at the north and south sides.

The structure at Graiguenamanagh, styled *Scriptorium* on plan, was a large apartment 66 ft. long, by 33 ft. 6 in. in width. It was of good proportions, with, no doubt, an east window, and was lighted by four windows in the south side. There was a doorway in the north side with two side lights. It will at once appear that this would be a rather unusual size for the library of a Cistercian abbey, and it is probable that it was added later for another purpose, and did not form any part of the original design.

It may have been that the receptacle originally intended for the custody of the MSS. of the abbey was one of the usual small apartments, often a room not larger than that shown to the left of the Chapter-house on plan. There is documentary evidence to show that the records preserved in the abbey became numerous and valuable, and such as would require not only space, but also light, in which they could be examined. The position of the Scriptorium shows that it was an afterthought, and this would account for finding a doorway in the east wall of the Chapter-room to give access to it, where the abbot's stone seat, under the east window, should be. It will also be observed that the Scriptorium has it axis running due east and west, and has a large outer doorway, and though this door opens to the north instead of to the west, it has all the requirements suitable for a Chapter-room as well as a Scriptorium; and an examination of the plans of such houses as Fountains, Furness, and Tintern would show that the Scriptorium at Graiguenamanagh occupies the place usually assigned to the Chapter-house.

If we regard the larger of the two apartments as the Chapter-house proper, though built later, the original room designated Chapter-house on plan would serve admirably as a vestibule to the larger building, and instances are not wanting in some of the English foundations where Chapter-houses of large size were added in this way.[1] The Chapter-house at Monasternenagh, which was very large, appears to have been 62 ft. long, by 22 ft. 3 in. wide, and it is possible the arrangement at Graiguenamanagh was intended to combine a Chapter-house and Scriptorium in one. The usual position of the Scriptorium is over the Chapter-room, and the departure from the recognized plan would show the importance of the place, whether the apartment is considered as intended for the meetings of the members of the Chapter, or as a Scriptorium, in which the intellectual activity of the monks could fitly display itself, as in compiling the "Annals of Duiske," for instance. Portions of the south and west walls, much defaced, are standing. The east wall is gone, and a portion of the north wall remains, with the broken mouldings of the doorway and side lights. The mouldings of the jamb of the door appear to have been almost identical with the moulding of the arches of the nave, and this would tend to show these portions to be coeval.

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[1] E.g. Margam Abbey, Glamorganshire.

Adjoining the Chapter-house is the *Calefactory*, or monks' day-room—an apartment 25 ft. by 24 ft.; and next to it we have the *slype* giving access to an enclosure which was probably the *Cemetery*. Next to the slype, and at the right-hand side of plan, we find an apartment 24 ft. by 19 ft., which was most probably the dead-house or *Morgue*, and the two apartments at the southern end of the range were offices under which runs the great sewer, 3 ft. in width and 6 ft. in height, covered with a stone arch, and which, when properly flushed by water from the Duiske river, carried all the refuse to the river Barrow, where it discharged. The Cistercians were good sanitarians, and knew the value of water carriage in disposing of the sewage.

The principal building south of the cloister is that marked *Refectory* on plan, and there can be no mistake in the nomenclature of this apartment. It is of good proportions, its axis runs north and south, and it still shows the remains of the carol or reading *Gallery* in a window in west wall. The apartment west of the refectory was the *Kitchen*, and further west the buttery.

The range of buildings to the west of the cloister garth contained the workshops of the community, also the cellarium, and over these were the dormitories of the lay brethren or *conversi* of the Order.

The *Cloisters*, it is worthy of remark, form a perfect square, in accordance with custom; cases in which the garth takes the form of a parallelogram being the exception.

Judging from some of the stones found, the cloister arcade appears to have been formed with small double columns of blue limestone, carrying ornamental double capitals in one stone, with semicircular-headed arches and trefoil cusping.

The remains of the *Abbot's Chamber*, which occupy the south-east angle of the site, are scanty, but sufficient to show their purpose. The *camera* of the abbot, the name by which his suite of lodgings was designated, seems to have comprised three large apartments on the ground-floor, and at least one apartment above. The position of the kitchen is indicated by the wide fire-place. It is highly probable that this group of buildings comprised both abbot's lodgings and *Infirmary*.

The Most Rev. Dr. Comerford, in his admirable account of the parishes of Graiguenamanagh and St. Mullins, says, speaking of this abbey—"There is a rich mine of beautifully sculptured stones under the present floor to a depth of some five feet. When the grave for the late Rev. M. Doyle, P.P., was being made, no less than five cartloads of sculptured stone were removed. There can be but little doubt that many monuments and other objects of interest are hidden away and consigned to oblivion beneath the present floor." Owing to the circumstances that the site is now occupied by houses of the village, and as a graveyard, and the choir, transepts, and a portion of the nave have been rebuilt and roofed for use as the Roman Catholic chapel, nothing further can be done in the way of excavation either to trace foundations or discover the buried carvings. But much still remains above ground, from which measured drawings of the mouldings of the principal architectural features may be made.

APPENDIX B.

THE ABBOTS OF DUISKE.

The following names appear:—

1204.	.	Ralph (p. 13).
1216.	.	S. (p. 28).
1223.	.	Thomas (p. 35).
1265.	.	Thomas (p. 97).
1282.	.	T. (p. 51, perhaps the same as the last named).
1288–91.	.	John (pp. 114, 118, 122).
1305.	.	Henry (p. 129).
1342.	.	Henry (p. 134, perhaps the same as the last named).
1356.	.	William Archer (? p. 135).
1356.	.	David Cornwalshe (p. 135).
1415, 1424.		John Dound, doctor of laws (pp. 139, 140).
1440.	.	Henry Weyng died (p. 140).
1440.	.	Philip (p. 141).
1447.	.	Dermit (p. 142).
1490.	.	Henry (p. 150).
1501.	.	Charles M'Murrough Kavanagh (pp. 153 ff), the last abbot.

Some titular abbots were appointed after the suppression of the abbey; e.g., Paul Ragget in 1611 (Carrigan, iii. 122, iv. 290), and Luke Archer, Roman Catholic archdeacon of Ossory, who was "commendatory abbot of Duiske" either before or after Ragget (D. Murphy, *Triumphalia Sanctae Crucis*, p. 85).

INDEX OF PERSONAL NAMES.

C.

D.

E.

F.

N.

O.

P.

Q.

R.

S.

T.

INDEX OF PLACE NAMES.

DESCRIPTION OF PLATES.

Plate I. Map of the district in which the Abbey of Duiske was situated.

Plate II. Seals attached to the Charters:

(1) Giovanni di Salerno, Cardinal Priest of St. Stephen, 1202. See p. 10.
(2) Alan Beg, about 1220. See p. 11.
(3) Philip de Prendergast, about 1226. See p. 42.
(4) Abbot of Citeaux, 1227. See p. 45.
(5) and (6) William le Chaunivor, bishop of Leighlin, 1228 (seal and counterseal). See p. 60.
(7) Chapter Seal of Leighlin, 1228. See p. 60.
(8) Abbot of Jerpoint, 1278. See p. 104.
(9) Abbot of Duiske, 1288. See p. 115.
(10) Abbot of Hore Abbey, Rock of Cashel, 1289. See p. 118.
(11) Abbot of Jerpoint, 1290. See p. 122.
(12) William FitzJohn, bishop of Ossory, about 1304. See p. 128.

Plates III and IV. The Abbey of Duiske in 1792 (from Grose's *Antiquities*).

Plate V. Plan of the Abbey Buildings (by R. Cochrane).

Map of the district.

Seals from the Charters.

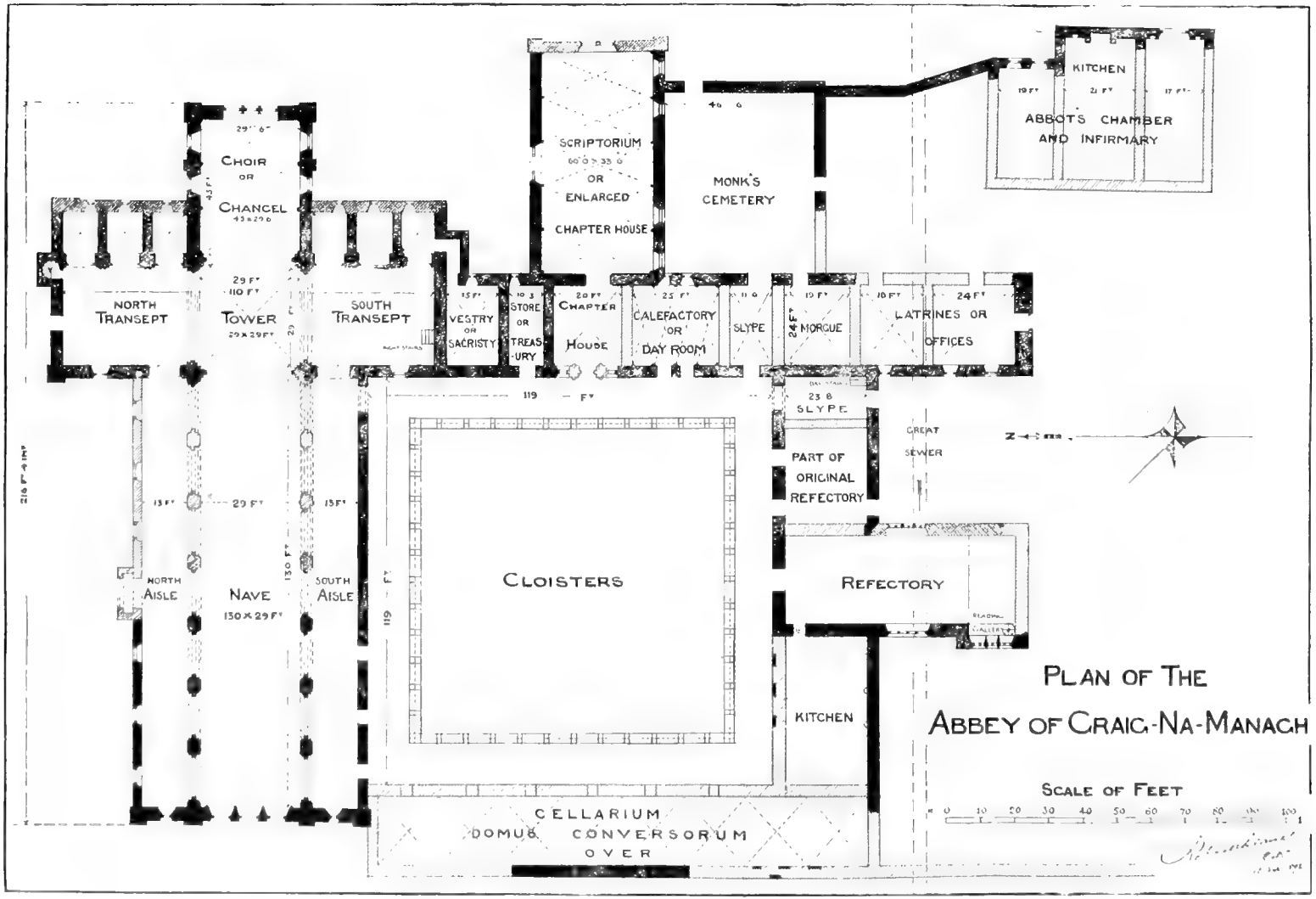
Bernard—The Abbey of Duiske.

The Abbey in 1792.

Bernard—The Abbey of Duiske

The Abbey in 1792.

Bernard—The Abbey of Duiske.



BERNARD—THE ABBEY OF DUISKE.

II.

ON THE PSEUDO-AUGUSTINIAN TREATISE, "DE MIRABILIBUS SANCTAE SCRIPTURAE," WRITTEN IN IRELAND IN THE YEAR 655.

By M. ESPOSITO, B.A.

Read December 9, 1918. Published March 27, 1919.

Printed among the manifestly spurious works in the various editions of St. Augustine's writings, we find a treatise in three books, entitled "De Mirabilibus Sanctae Scripturae,"[1] the last independent edition[2] of which was given by the Benedictines of Saint-Maur in 1680. Their text was reprinted in the invaluable "Patrologia Latina"[3] of J. P. Migne (1841, 1861, and 1864), whose reprint will be quoted throughout this paper.

Such as it is, this edition is unsatisfactory. It is practically a reprint of the older editions, with a few variants added from the Rouen ms. Apart from the very poor typography, the text is in places incomprehensible. No attempt has been made to indicate the sources of the work, or to trace, collate, and classify the numerous mss.[4] The present memoir is designed as an aid towards a new and really critical edition of the treatise. May some scholar be found willing to undertake the task!

I.—The Manuscripts.

I shall commence with an enumeration of the mss. the existence of which is at present known to me. Further researches will, no doubt, lead to the discovery of others.

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[1] This is the title given to the work in the Prologue (Ed. col. 2149). The headings in the mss. vary: "De Mirabilibus Veteris et Novi Testamenti," "De Mirabilibus Sacrae Scripturae," "De Mirabilibus Diuinae Scripturae."

[2] A list of the earlier editions was given by Reeves (Proc. R.I. Acad., vii, 1861, p. 515 n.), whose memoir will be dealt with further on (p. 199).

[3] Tomus 35, cols. 2149–2200.

[4] It does not appear to be possible to discover on what mss. the editors based their text; cf. Kukula, Sitz. der Wiener Akad., 138, 1898, Abhl. v, p. 52. They were aware that the older printed editions differed very considerably from the mss.

Avignon, Bibliothèque Publique.

MS. No. 228. Membr. saec. xiii$^{ex.}$, fols. 36b–39a. An incomplete copy.[1]

Brussels, Bibliothèque Royale.

MS. No. 10543-10544. This MS. was examined by me at Brussels in August, 1913. A century ago it belonged to the then Imperial Library at Paris.[2] It is an octavo paper volume, written in single columns, with from 28 to 31 lines to the page, in a hand of saec. xv, with initials and headings in red. The treatise begins on fol. 21a: "Incipit prologus beati Augustini de mirabilibus noui [et] ueteris testamenti. Venerantissimis," &c. There are many variations from the printed text. The following may be here noted:— Ed. col. 2152, *Manchinaaum*; MS. f. 21b, *Manchianum*;[3] Ed. col. 2152, *si quid intelligentiae addidi, et ab altero, ut credo, saliva oris ejus vicem laborum causam suscepi*; MS. f. 21b, *si quid intelligentie ab eo didici et ab altero ut credo una saliua oris eius uicem laborum omnium suscepi*;[4] Ed. col. 2158, *sesquivolos*; MS. f. 30a, l. 10, *sesquiuloles*;[5] Ed. col. 2164, *quae erat virga naturaliter, serpens specialiter videtur*; MS. f. 36b, l. 13, *que erat uirga naturaliter spiritualiter uidetur*;[6] Ed. col. 2166, *subito urgente pelago*; MS. f. 39a, l. 1, *in rugante pelago*;[7] Ed. col. 2166, *de sicco resolvitur*; MS. f. 39a, l. 3, *tam cito resoluitur*;[8] Ed. col. 2169, *superpositae morae nagarbae*; MS. f. 42a, l. 14, *supposite rote nagarba*;[9] Ed. col. 2169, *quamvis liquidae naturae esse non pateat*; MS. f. 42a, l. 28, *quamuis liquide esse nature pateat*;[10] Ed. col. 2176, *Allia*; MS. f. 49a, l. 30, *Allia*.[11] On ff. 21b–22a is an index to the chapters of Book I (ff. 22b–46b). The second book, with preliminary index, occupies ff. 46b–67b, and the third, with index, ff. 67b–75a.[12]

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[1] Labande, "Catalogue général des Manuscrits des Bibliothèques Publiques de France, Départements," t. 27, 1894, p. 134.

[2] Van Den Gheyn, "Catalogue des Manuscrits de la Bibliothèque Royale de Belgique," t. 2, 1902, p. 109.

[3] So also the British Museum MS. (f. 123a), described lower down (p. 192), and the Rouen MS. [Also MS. Harl. 4725.]

[4] So also the British Museum MS. (f. 123a, col. 2), and Harl. 4725.

[5] *Sesquilones*, MS. Br. Mus. (f. 125b, col. 1).

[6] The Rouen MS., described further on (p. 195), reads *uirga specialiter semper uidetur*.

[7] *Subito rigente pelago*, MS. Br. Mus. (f. 128a, col. 2).

[8] *Undas tam retro resoluitur*, MS. Br. Mus (f. 128a, col. 2).

[9] *Supposite recte nagarba*, MS. Br. Mus. (f. 129a, col. 1); *roccae nagarba*, Rouen MS.

[10] So also MS. Br. Mus. The Rouen MS. has *quatenus liquidae naturae esse pateat*.

[11] The London MS. omits *Allia*, leaving a blank. The scribe evidently did not understand he had a proper name before him.

[12] In the seventeenth century copies of the "De Mirabilibus" were preserved in several Belgian monasteries—St. Martin's at Tournai, Corsendonck (two copies), St. Augustine's at Louvain (Sanderus, "Bibliotheca Belgica Manuscripta, i, 1643, p. 112; ii, 1644, pp. 48, 211).

Cambridge, Corpus Christi College.

MS. No. 154. Folio, membr. saec. xiv, fols. 196a–218a. From St. Augustine's, Canterbury.[1]

Cambridge, Emmanuel College.

MS. No. 2. Membr. saec. xiii$^{ex.}$, fols. 1a–18a: "Incipit prologus beati Augustini de mirabilibus ueteris et noui testamenti. Veneratissimis urbium et monasteriorum episcopis et presbiteris," etc. Apparently in an English hand.[2]

Cambridge, Pembroke College.

This Library possesses four copies of the work.

(1.) MS. No. 20. Membr. saec. xiii$^{ex.}$, fols. 28b–42b: "Incipit prologus beati Augustini in libro eiusdem de mirabilibus diuine scripture. Veneratissimis urbium et monasteriorum episcopis," etc. From the abbey of Bury St. Edmunds.[3]

(2.) MS. No. 34. Membr. saec. xiv, fols. 259a–272b. From Bury St. Edmunds. Almost certainly copied from No. 20 or its archetype.[4]

(3.) MS. No. 87. Membr. saec. xiii/xiv, fols. 121a–130b: "Incipiunt libri Sancti Augustini de mirabilibus diuine scripture. Omnium mirabilium," etc. (Ed. col. 2151). Without the Prologue and index of chapters. Also from Bury.[5]

(4.) MS. No. 135. Membr. saec. xiii$^{ex.}$, fols. 123b–130a. Without Prologue and index.[6]

Cambridge, Peterhouse.

MS. No. 113. Membr. saec. xv, fols. 145b–169a: "Augustini libri tres de mirabilibus sacre scripture."[7]

Cambridge, St. John's College.

MS. No. 47 (B. 25). Membr. quarto saec. xiii$^{ex.}$ The thirteenth tract is "S. Augustini de mirabilibus divinae scripturae libri tres,"[8] fols. 99b–116a. A complete copy.

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[1] James, "Catalogue of MSS. in the Library of Corpus Christi College, Cambridge," Part ii, 1910, p. 348; cf. also James, "Ancient Libraries of Canterbury and Dover," 1903, p. 241.

[2] James, "The Western MSS. in the Library of Emmanuel College," 1904, p. 1.

[3] James, "Catalogue of the MSS. in the Library of Pembroke College," 1905, p. 18.

[4] James, *loc. cit.*, p. 37.

[5] James, *loc. cit.*, p. 79.

[6] James, *loc. cit.*, p. 134.

[7] James, "Catalogue of the MSS. in the Library of Peterhouse," 1899, p. 132.

[8] James, "Catalogue of the MSS. in the Library of St. John's College, Cambridge," 1913, p. 68.

Cambridge, University Library.

This Library possesses three MSS. of the tract.

(1.) MS. Ff. iv. 8. Membr. folio saec. xiv, fols. 231a–240a: "S. Augustini de mirabilibus divine scripture. Omnium mirabilium uelud principale,"[1] etc. (Ed. col. 2151).

(2.) MS. Kk. ii. 14. Membr. Folio saec. xiv, fols. 132a–147b: "Augustinus de mirabilibus diuine scripture. Veneratissimis urbium,"[2] etc.

(3.) MS. Kk. iv. 11. Membr. folio saec. xv, fols. 66a–89a: "Augustinus de mirabilibus sacre scripture. Veneratissimis urbium,"[3] etc.

Châlon-sur-Saône, Bibliothèque Publique.

MS. No. 6. Membr. saec. xiii/xiv, fols. 118a–128a. From the abbey of La Ferté-sur-Grosne.[4]

Durham, Cathedral Library.

MS. B. 2. 19. Membr. saec. xiv, tenth tract: "Omnium mirabilium," etc. (Ed. col. 2151). An incomplete copy.[5]

Florence, R. Biblioteca Mediceo-Laurenziana.

MS. Fesulanus No. 22. Folio membr. saec. xv, fols. 338a–358a.[6]

London, British Museum.

(1.) MS. Harley, 4725, fols. 20a–40b, saec. xiv. [*Catal.*, iii, 1808, p. 196].

(2.) MS. Royal 5. C.V., fols. 123a–139a. A vellum folio[7] consisting of 307 numbered folios, written in double columns in a hand of saec xiv. There are 60 lines to the column. Headings are in red and there are large initial capitals in red, blue, gold and green, sometimes with flowery borders. This MS. was once the property of the abbey of Sempringham in Lincolnshire (f. 1b): "liber de domo de Sempingham." The volume contains a number of St. Augustine's *Opuscula*, and on ff. 2a–57b the "Corrogationes Promethei"

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[1] "Catalogue of the MSS. in the Library of the University of Cambridge," ii, 1857, p. 440. Copies of the "De Mirabilibus" are mentioned in the fifteenth-century catalogue of MSS. in the Cambridge University Library (Bradshaw, "Collected Papers," 1889, p. 21), and in that of the Augustinian Friars at York, drawn up in 1372 (James, "Fasciculus J. W. Clark dicatus," 1909, p. 24, No. 68). A copy of the work was in Bale's possession ("Script. Bryt. Cat.," Basileae, 1559, Pars ii, p. 163).

[2] *Loc. cit.*, iii, 1858, p. 612.

[3] *Loc. cit.*, iii, p. 650.

[4] Bougenot, "Catal. gén. des MSS. des Bibl. Publ. de France, Départements," t. 6, 1887, p. 362.

[5] Schenkl, "Sitzungsberichte der K. Akad. in Wien, Philos.-Hist. Klasse," 139, Abhl. ix, 1898, p. 80.

[6] Bandini, "Bibliotheca Leopoldina Laurentiana," ii, 1792, col. 654.

[7] Brief description by Casley, "Catalogue of the MSS. in the King's Library," 1734, pp. 77–78.

of Alexander Neckam—a copy which has escaped the notice of M. Paul Meyer.[1] [Cf. Esposito, "Eng. Hist. Rev.," 30, 1915, p. 463.]

f. 123a: "Incipit prologus beati Augustini de mirabilibus ueteris et noui testamenti. Veneratissimis," etc. After the prologue comes an index of the chapters of Book i, which latter occupies ff. 123a–130b. The second Book occupies ff. 130b–137a, and the third ff, 137a–139a. In the margins are some annotations in a more recent hand. In addition to the variants noticed above (p. 190) the following may be here mentioned:— Ed. col. 2158, *dedit in nubecula*; MS. f. 125b, col. 1, *dedit in uiduas*;[2] Ed. col. 2178, *arrcptus*; MS. f, 132a, col. 2, *arrepto*;[3] Ed. col. 2182, *pervexit*; MS. f. 133b, col. 1, *perrexit*;[4] Ed. col. 2195, *statutam*; MS. f. 138a, col. 1, *tutam*;[5] Ed. col. 2196, *In hoc namque Satanas*; MS. f. 138a, col. 1, *in hoc namque conspectu Sacharias*; Ed. loc. cit., *liber*; MS. loc. cit., *sacer*;[6] Ed. loc. cit., *terrore*; MS. loc. cit., *errore*;[7] Ed. loc. cit., *in servi*; MS. loc. cit., *inferni*;[8] Ed. col. 2197, *super aequorum auribus*, where the Benedictines propose *littoribus*, the MSS. read *super equorum auribus*. Ed. col. 2198, *possit*; MS. f. 138b, col. 2, *speretur*.[9]

London, Sion College Library.

MS. Arc. 1, 11. Folio membr. saec. xiii$^{ex.}$, double columns, fols. 120a–126a: "Omnium mirabilium principale," etc. (Ed. col. 2151). Wanting Prologue.[10]

Marseille, Bibliothèque Municipale.

MS. No. 210. Membr. saec. xiv, fols. 37a–39b. A series of extracts from the work.[11]

Munich, K. Hof-u. Staats-Bibliothek.

Cod. Lat. No. 24827. Chartaceus, fols. 107a–141b. Copied in 1499.[12]

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[1] "Notices et Extraits des MSS.," etc., t. 35, pt. 2, 1897, p. 645.

[2] So also the Rouen MS.

[3] So Rouen MS.

[4] The Rouen MS. has *protexit*.

[5] The Benedictine editors suggest *constitutam*.

[6] So Rouen MS.

[7] So Rouen MS.

[8] So Rouen MS.

[9] So Rouen MS.

[10] Schenkl, "Sitzungsberichte der K. Akademie in Wien, Philos.-Hist. Klasse," 150, Abhl. v, 1905, p. 2.

[11] Albanès, "Catal. gén. des MSS. des Bibl. Publ. de France, Départements," t. 15, 1892, p. 73.

[12] "Catalogus Codicum Latinorum Bibliothecae Regiae Monacensis," t. ii, pars 4, 1881, p. 146. A few extracts in No. 4756, s. xv, cf. *loc. cit.*, i, 2, ed. 2, 1894, p. 239.

Oxford, Bodleian Library.

This Library possesses four copies of the treatise.

(1.) MS. Rawlinson C. 153. Membr. fol. min. saec. xii, fols. 1a–42a. A portion of the index of chapters is missing.[1]

(2. MS. Rawlinson C. 531. Membr. octavo saec. xiii$^{ex.}$, fols. 33a–86b. From Croyland Abbey.[2]

(3.) MS. Bodley No. 238. Membr. folio saec. xiv, double columns. Twelfth tract.[3]

(4.) MS. Auct. F. infra I, 2. Membr. folio saec. xiv$^{ex.}$, fols. 181a–189a. Double columns. Eighteenth tract.[4]

Oxford, Balliol College.

MS. No. 229. Membr. folio saec. xii$^{ex.}$, fols. 57a–79b.[5]

Oxford, Brasenose College.

MS. No. 12. Membr. folio saec. xv, fols. 193a–218a. Begins imperfectly . . . . . "uicissitudo declaratur,"[6] etc. (Ed. col. 2152).

Oxford, Magdalen College.

MS. No. 177. Membr. folio saec. xv, fols. 179a–195b: "Incipit prologus beati Augustini episcopi de mirabilibus noui et ueteris testamenti." It breaks off abruptly in iii, 8 (Ed. col. 2197) "aquam sollidaret aut humanam"[7] . . . . .

Oxford, Merton College.

This Library possesses two copies.

(1.) MS. No. 1. Membr. folio saec. xiv, fols. 245b–250b.[8]

(2.) MS. No. 19. Membr. folio saec. xiv, fols. 240b–247a.[9]

Paris, Bibliothèque Mazarine.

MS. No. 640. Membr. saec. xv, fols. 166a–191a. This copy wants the prologue, and at the end are apparently two additional chapters not found in the other MSS.[10]

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[1] Macray, "Catalogi Codicum Manuscriptorum Bibliothecae Bodleianae," Partis v fasc. 2, 1878, col. 63.

[2] Macray, *loc. cit.*, col. 282.

[3] Schenkl, "Sitzungsberichte," etc., 123, v, 1891, p. 33.

[4] Schenkl, *loc. cit.*, 124. iii, 1891, p. 35; Poole, "Wycliffe De Dominio," 1890, p. 260.

[5] Coxe, "Catalogi Codicum Manuscriptorum qui in Collegiis Oxoniensibus adservantur," 1852, pars i, Balliol Coll., p. 75.

[6] Coxe, *loc. cit.*, 1852, pars ii, Coll. Aenei Nasi, p. 4.

[7] Coxe, *loc. cit.*, ii, Magdalen Coll., p. 81.

[8] Coxe, *loc. cit.*, i, Merton Coll., p. 2.

[9] Coxe, *loc. cit.*, p. 17.

[10] Molinier, "Catal. gén. des MSS. des Bibl. Publ. de France, Paris, Bibl. Mazarine," t. i, 1885, p. 289.

Paris, Bibliothèque Nationale.

At least six copies.

(1.) MS. Lat. No. 1936. Membr. saec. xiv. Sixth tract.[1]

(2.) MS. Lat. No. 1956. Membr. saec. xiiex. Fifth article.[2]

(3.) MS. Lat. No. 1974. Membr. saec. xiv. Tenth tract.[3]

(4.) MS. Lat. No. 2048. Membr. saec. xv. Twenty-fifth article.[4]

(5.) MS. Lat. No. 2978. Chart. saec. xv. Nothing else in the MS.[5]

(6.) MS. Lat. No. 14479. Membr. saec. xv. Nothing else in volume.

Rouen, Bibliothèque Publique.

MS. No. 665 (A. 453). Membr. saec. xii, fols. 67a–102b.[6] From the ancient abbey of Saint-Ouen at Rouen.[7] A few important readings from this MS. were given by the Benedictines in the foot-notes to their edition (cf. *supra*, pp. 190, 193).

Tours, Bibliothèque Municipale.

Two copies.

(1.) No. 247. Membr. saec. xiii, fols. 185a–194a. From the Cathedral of Saint-Gatien, Tours. Extracts only.[8]

(2.) No. 250. Membr. saec. xiv, fols. 195b–201b. From Saint-Gatien. Merely a series of extracts.[9]

Troyes, Bibliothèque Publique.

MS. No. 280. Membr. folio saec. xii. Second tract in the MS. Formerly F. 92 in the Cistercian Abbey of Clairvaux.[10]

Worcester, Cathedral Library.

MS. F. 57. Membr. folio saec. xiii, fols. 194b–209. Complete copy.[11]

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[1] "Catalogus Codicum Manuscriptorum Bibliothecae Regiae," t. iii, 1744, p. 216.

[2] *Loc. cit.*, p. 218.

[3] *Loc. cit.*, p. 221.

[4] *Loc. cit.*, p. 232.

[5] *Loc. cit.*, p. 358.

[6] Omont, "Catal. gén. des MSS. des Bibl. Publ. de France, Départements," t. i, 1886, p. 173. In Ed. col. 2152 it reads with Harl. 4725, *Barbano*.

[7] Omont, *loc. cit.*, p. xv.

[8] Collon, "Catal. gén. des MSS. des Bibl. Publ. de France, Départements," t. 37, 1900, p. 179.

[9] Collon, *loc. cit.*, p. 182.

[10] "Catalogue général des MSS. des Bibliothèques Publiques des Départements," 4to Series, t. 2, 1855, p. 137.

[11] Schenkl, "Sitzungsberichte der K. Akademie in Wien, Philos.—Hist. Klasse," 139, Abhl. ix, 1898, p. 50; Floyer and Hamilton, "Catalogue of MSS. preserved in the Library of Worcester Cathedral," 1906, p. 27.

With regard to the MS. of the "De Mirabilibus" mentioned by Tomasini ("Bibliothecae Patavinae Manuscriptae," 1639, p. 71), it is now probably to be found in the library of the University of Padua. According to Montfaucon ("Bibl MSS. Nova," i, 1739, p. 62), there is a MS. of the treatise in the Vatican, Reg. Suec. 27. The codex, Palatinus 227, ff. 10b–13a, of s. xv, contains only a few short extracts.

In the foregoing list are enumerated forty-two MSS.[1] Of these, thirty-one represent the complete work, six omit the prologue and a few lines of the first chapter, and the remaining five consist merely of brief extracts. Five of the complete copies are as ancient as the twelfth century. These are Paris Lat. 1956; Rouen, 665; Troyes, 280; Oxford Rawlinson C. 153; and Balliol College, 229.

II.—The Authorship of the Treatise.

That the "De Mirabilibus" is not the production of the great St. Augustine is apparent to anybody who reads it through, and was realised by the editors[2] who printed it among the *Spuria*. The evidence for the authorship reposes on the following passages:—

(1.) The Dedication and Prologue, Ed. col. 2149: "Venerandissimis[3] urbium et monasteriorum episcopis et presbyteris, maxime Carthaginensium, Augustinus per omnia subjectus, optabilem in Christo salutem.

"Beatissimi, dum adhuc viveret, patris mei Eusebii ad hoc opus praecepto constrictus, adhortantibus etiam vobis Christianis, vel maxime venerandissimo magistro imperii auctoritate compellente, tres de Mirabilibus Sanctae Scripturae Veteris ac Novi Testamenti libros, historica expositione, quanta potui brevitate, Domino annuente, composui."

(2.) Ed. col. 2152: "Hoc[4] autem opus utrum intereat an maneat in vestro pendet arbitrio. Ab uno enim vestrum, id est Bathano, post patrem Manchianum, si quid intelligentiae ab eo didici, et ab altero ut credo una saliua oris eius, uicem laborum omnium suscepi." [MS. Harl. 4725 reads *Barbano*, and *uicem librorum*.]

(3. i, 7. Ed. col. 2158: "Quis enim, verbi gratia, lupos, cervos, et silvaticos porcos, et vulpes, taxones, et lepusculos, et sesquivolos in Hiberniam deveheret?"

(4. ii, 4. Ed. cols. 2175–2176: ". . . . . donec decimus [cyclus] inde oriens nonagesimo secundo anno post passionem Salvatoris, Alia et Sparsa consulibus, peractis cursibus consummatur. Post quem undecimus a consulatu

[1] The Library of Syon Monastery, Isleworth (suppressed in 1539), possessed three copies of the "De Mirabilibus." In the Catalogue drawn up about 1526 (ed. M. Bateson, 1898, pp. 51, 96, 120), these were noted under the press marks, E. 53, fol. 53; M. 5, fol. 83; N. 14, fol. 7. I am not aware that these MSS. are now in existence.

[2] St. Thomas Aquinas ("Summa Theologiae," Pars iii, Quaest. 45, Art. 3, tomus xi, Romae, 1903, p. 432) had already pronounced it spurious.

[3] The reading of the MSS. varies between *Venerandissimis* and *Veneratissimis*.

[4] I give this passage according to the reading of the British Museum and Brussels MSS. The text as presented by the printed editions is here unintelligible, and has clearly embarrassed Dom Gougaud ("Les Chrétientés Celtiques," 1911, p. 256).

Paterni et Torquati ad nostra usque tempora decurrens, extremo anno Hiberniensium moriente Manichaeo[1] inter caeteros sapientes, peragitur. Et duodecimus nunc tertium annum agens ad futurorum scientiam se praestans a nobis qualem finem sit habiturus ignoratur."

Let us now consider what conclusions may be drawn from the above extracts. Leaving aside for the moment the Dedication, we see from (2), (3), and (4) that the treatise was written by an Irishman for the use or at the suggestion of certain Irish ecclesiastics. A foreigner, or an Irishman writing in England or on the Continent, would surely not have thought it necessary to include the references to Ireland in (3) and (4). The exact meaning of (2) is not clear. Are we to understand from it that the work was designed or commenced by Bathanus and Manchianus, and then taken over and completed by the anonymous writer? As to the identifications of Bathanus and Manchianus we are enabled to conjecture with a tolerable amount of probability, thanks to the fourth extract, which gives us the actual date at which the book was composed. This passage forms portion of a computistical disquisition dealing with the Mundane Reckoning of eleven Victorian Great Paschal Cycles of 532 years from the Creation. The writer employed a Mundane Period of 5200[2] (i.e. A.M. 5201 = A.D. 1) based on an interpolated passage in the Prologue of the *Cursus Paschalis* of Victorius of Aquitaine,[3] from whom he also derived his consular data.[4] The calculation is as follows:—

Last year of the tenth cycle = $10 \times 532 - 5200$ = A.D. 120, date according to our writer of the consulship of Alia and Sparsa (a corruption of Aviola and Pansa); first year of the eleventh cycle = 121, consulship of Paternus and Torquatus; last year of the eleventh cycle = $11 \times 532 - 5200$ = A.D. 652,

[1] So the MSS. *Manichaeus* is clearly a scribal blunder for *Manchianus*. The author must have had some special reason for singling out for mention this Manchianus among the other *sapientes*. Possibly he had studied with him, or both may have once been connected with the same monastery. At any rate, we are not warranted in identifying either the Manchianus or Bathanus of (2) with the author's "most respected master" (1), whose name is not given.

[2] I follow here the admirable chronological investigations of MacCarthy (R. Irish Acad., Todd Lecture Series, vol. iii, 1892, pp. 365–368, 393, and "Annals of Ulster," iv, 1901, pp. xci, xcii). It is not, however, possible to agree with MacCarthy when he states that it was from the "De Mirabilibus" that the author of the forgery known as the "Annals of Tigernach" adopted this Mundane Period of 5200.

[3] Section 9 in Mommsen's edition ("Chronica Minora," i, 1892, pp. 682–683; ap. "Mon. Germ. Hist., Auct. Ant.," t. ix).

[4] Ed. Mommsen, *loc. cit.*, i, p. 694. The indebtedness of the Irish writer to Victorius was perceived by Mommsen, who, however, worked out the date as 654. Reeves' suggestion (Proc. R. I. Acad., vii, 1861, p. 517) that our author was here drawing from the "Chronicle" of Cassiodorus (ed. Mommsen, *loc. cit.*, ii, 1894, p. 120 *sq.*), is untenable.

the year of the death of "Manichaeus" and the other Irish sages; first year of the twelfth cycle = 653, the third year of which is 655. The "De Mirabilibus" was therefore written in A.D. 655.

Having now fixed the date, we can identify the "Manichaeus," who died according to our author in 652, with Manchene, abbot of Mondrehid near Borris in Queen's Co., whose death, precisely in this year, is recorded by the so-called "Annals of Tigernach"[1] and by the "Annals of Ulster."[2] The "other sages" who died in the same year are named in the "Annals of Tigernach"[3] under the same date. They were: Seghine, abbot of Iona; Aedlug, abbot of Clonmacnoise; and St. Caimin of Inis Cealtra.

With regard to the Bathanus and Manchianus mentioned in the second passage given above, the first can be identified with Baetan Mac-Ui-Cormaic, abbot of Clonmacnoise,[4] who died in 664, and was probably the bishop Baithanus mentioned by Bede.[5] The "pater Manchianus" is the same person as "Manichaeus,"[6] as a Munich MS. will show.

It remains now to deal with the Dedication, which presents certain serious difficulties. The writer therein styles himself Augustinus and professes to be writing his work principally for the bishops and priests of Carthage. Evidently he intended to convey the impression that the great St. Augustine was the author, which is conclusively disproved among other things[7] by the references to Ireland and the mention of the date 655. There is no foundation for the suggestion of the editors that some such word as *Cantuariensium* is concealed beneath *Carthaginensium*, which is read by all the complete MSS. in which the Dedication occurs.

[1] Ed. Stokes, "Revue Celtique," 17, 1896, p. 192. Cf. MacNeill, Ériu, 7, p. 30.

[2] Ed. MacCarthy, iv, 1901, pp. lxx n., 268.

[3] Ed. Stokes, *loc. cit.*, p. 192.

[4] "Annals of Ulster," ed. MacCarthy, iv, p. 29; Tigernach, p. 198.

[5] "Hist. Eccl.," II, 19, ed. Plummer.

[6] We may here note that Holder and Souter (Proc. British Academy, 1907, pp. 430-431) have discovered that the anonymous Latin commentary on the Catholic Epistles in MS. Karlsruhe, Aug. 253, s. IX, fols. 1a-40b (cf. Holder, "Die Reichenauer Handschriften," I, 1906, pp. 531-533), is the work of an Irishman, who cites three native teachers—Brecanus (at least four times), Bercanus, son of Aido (once), and Manchianus (once). Aido is an Old-Irish genitive. Souter conjectured the work to date from the end of the seventh or beginning of the eighth century, apparently on the strength of Holder's most improbable identification of Manchianus with St. Mochonna (ob. 704). Quiggin's suggestion that Brecanus is the contemporary of St. Enda of Arran (saec. V) is equally unlikely. It is quite possible that the Manchianus of the Karlsruhe treatise is none other than our Manchianus of the "De Mirabilibus," and that the work is to be assigned to the middle or to the latter part of the seventh century. I shall deal with this work elsewhere.

[illegible] the name of the writer's father Eusebius.

This difficulty was explained in a different manner by Reeves,[1] who proposed to regard this Augustinus as an Irish ecclesiastic connected, like his famous predecessor, with the church of Carthage. This solution is highly improbable—as indeed the editors long before Reeves had perceived.[2] There is no evidence of Irish ecclesiastics having ever been connected with the Church of Carthage, and the miserable condition of that Church in the middle of the seventh century was certainly not calculated to attract foreigners. Moreover, were Reeves' view adopted, we should have to conclude that Bathanus and Manchianus were also connected with the same church, and it would be difficult to understand why an author writing for African priests and bishops should find it necessary to insert the allusions to Ireland and Irish affairs which we read in (3) and (4). But there is a decisive argument against Reeves's view of an Irish Augustine of Carthage as author.[3] Barely sixty years after its compilation the "De Mirabilibus," as we shall shortly see, was cited by an Irish computistical writer as a work of St. Augustine's. It is difficult to believe that had there been an Irish writer named Augustine all memory of him would have been already blotted out in his own country only sixty years after he had written.

The most probable solution appears to be that the treatise was originally anonymous, or that the writer's name had become effaced in the archetype and forgotten, and that some later editor or reviser, either by mistake, or deliberately for the purpose of gaining authority and popularity for the work, inserted the name Augustinus and the reference to Carthage in the Dedication, neglecting at the same time to erase those passages which conclusively belied such an attribution. It is well to bear in mind that patristic forgeries made by Irishmen at this period are by no means uncommon.[4]

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[1] Proc. R.I. Acad., vii, 1861, pp. 514–522.

[2] This had been also realized by Moran ("Essays on the Early Irish Church," 1864, p. 219 n.), but his suggestion that some word giving the meaning *Clonmacnoise* was to be read in place of *Carthaginensium* does not find a particle of evidence to support it.

[3] The improbability of Reeves's view had evidently struck G. T. Stokes ("Ireland and the Celtic Church," ed. Lawlor, 1907, pp. 221–224), and Gougaud ("Les Chrétientés Celtiques," 1911, pp. 256–257), who speak of the "De Mirabilibus," and carefully omit all mention of the author's supposed connexion with Carthage. It may also be remarked that it is highly improbable that an author writing at Carthage in the middle of the seventh century would have employed a Biblical text of the mixed type cited in the "De Mirabilibus" (cf. *infra*, pp. 202–205).

[4] In view of the fact that these works are little known, it may serve some useful purpose to enumerate them here:—

1. "Acts of the Council of Caesarea," an Irish paschal forgery of A.D. 508 (ed. Krusch, "Studien zur christlich-mittelalterlichen Chronologie," 1880, pp. 303–310; cf. also MacCarthy, "Annals of Ulster," iv, 1901, pp. lxix, cxv–cxvii); MS. Digby 63.

2. "Pseudo-Athanasian Tractate on the Paschal System," forged in 546 (ed. Krusch, *loc. cit.*, pp. 328–336; cf. MacCarthy, pp. cxvii–cxviii).

Were it intended to circulate the work as a genuine production of the great African doctor, the attempt was perfectly successful, for, as already remarked, we find the "De Mirabilibus" quoted barely sixty years after its composition under the title of "Compotus Sancti Augustini." The anonymous writer who thus quotes it was an Irishman, who drew up in the year 718 a "Computus," which is preserved in a single ninth-century MS. at Munich, Cod. lat. 14456, fols. 8a–46a, and has never been printed.[1] The quotation occurs on fol. 46a, lines 14–19:

"De Mirabilibus," ii, 4, Ed. col. 2176.	Munich "Computus."
Post quem undecimus . . . ad nostra usque tempora decurrens, extremo anno Hiberniensium moriente Manichaeo inter caeteros sapientes, peragitur. Et duodecimus nunc tertium annum agens ad futurorum scientiam se praestans, a nobis qualem finem sit habiturus ignoratur.	Ciclus xi. Undecimus, in temporibus nostris currens, Hibernensium doctore Manchiano moriente, peragitur. De Ciclo xii. Duodecimus sua tempora nunc agens, a nobis qualem finem habuerit, ignoratur.

Towards the end of the same century the work was utilized by Alcuin of

3. "Pseudo-Anatolian Paschal Forgery," written in 556 (ed. Krusch, pp. 311–327; cf. MacCarthy, pp. cxviii–cxxvii).

4. "The Epistle of St. Cyril on the Paschal Question," forged in 606 (ed. Krusch, pp. 101, 344–349; cf. MacCarthy, pp. cxxxiv–cxxxv); MS. Digby 63, f. 60.

5. "Epistola Moriani Episcopi Alexandrini de Ortu Paschali," of uncertain date (ed. Muratori, "Anecdota Ambrosiana," iii, 1713, pp. 195–196; cf. MacCarthy, p. cxl); MS. Digby 63, s. ix^{ex}., ff. 79a–81a; Paris, 16361.

6. "De xii Abusiuis Saeculi," attributed in most of the MSS. to Cyprian. In some to Augustine, and occasionally to Isidore. Hellmann, to whom we owe an excellent critical edition of the tract ("Texte und Untersuchungen," etc., herausg. von Harnack und Schmidt, Bd. 34, Heft 1, 1909, pp. 1–62), has proved that it was written in Ireland between the years 630 and 700 (cf. also Manitius, "Geschichte der lateinischen Literatur des Mittelalters," i, 1911, pp. 107–108).

7. "De Tribus Habitaculis," a Pseudo-Augustinian work of unknown date (ed. Migne, "Patrol. Lat.," 40, cols. 991–998, and also 53, cols. 831–838). The only evidence for connecting it with Ireland is its attribution to St. Patrick in the following MSS.:—Troyes, 1562, s. xii; Oxford, Rawlinson C. 33, s. xii^{ex}., and Corpus Christi Coll., 212, s. xii; Cambridge, Gonville and Caius College, 239, s. xiii^{in}. Other MSS. of saec. xiii, xiv, and xv attribute it to St. Augustine, *e.g.*, Cambridge, Trinity College, Nos. 59, 164, and 325; British Museum, Arundel 165; Metz, 358; and many others. In Oxford, Digby 96, s. xii^{ex}., it is anonymous. Internal evidence shows that the work can have been written neither by St. Augustine nor by St. Patrick.

[1] The earliest investigation of this work is due to Bruno Krusch ("Studien zur christlich-mittelalterlichen Chronologie," 1880, p. 10), but its origin was first accurately worked out by MacCarthy ("Annals of Ulster," iv, 1901, pp. lxvii–lxx and clxxviii–clxxx).

York, who in his "Interrogationes et Responsiones in Genesin" (No. 124, Migne, "Patrologia Latina," 100, col. 530) quotes a passage from it, though without any acknowledgment:

"De Mirabilibus," i, 5, Ed. col. 2156.

De animalibus quoque quae nec in terra tantum, nec in aqua tantum vivere possunt, quaestio vertitur, quomodo diluvium evaserunt, quales sunt lutri, vituli marini, et multa avium genera, quae in aquis escarum suarum victum requirunt, sed in arena dormiunt, et nutriuntur, et requiescunt . . . Utrum per virtutem suam utramvis eorum naturam, donec diluvium transiret, Deus temperavit, ut, aut in humore tantum, aut in arida tantum, illis tunc vita esse potuerit.

Alcuin, P.L., 100, col. 530.

Quid de animalibus sentiri debet quorum natura nec semper in aridis, nec semper in humidis vivere potest, sicut sunt lutri, vituli marini, et multa avium genera, quae in aquis victum requirunt, sed in aridis dormiunt et requiescunt?—Resp. Potuit virtus divina utramvis eorum naturam, donec diluvium transiret, temperare, ut, aut in humido tantum, aut in arido tantum, vivere possent.

On the whole, however, the "De Mirabilibus" appears to have enjoyed little popularity for several centuries, for we find no MS. of it earlier than the twelfth century, and it does not appear to be mentioned in any of the catalogues of ancient libraries collected and published by Becker[1] and Gottlieb.[2] In the twelfth century, however, it suddenly springs into popularity, and, as we have seen above (pp. 190–195), from the twelfth to the end of the fifteenth was repeatedly copied, always on the assumption that it was a genuine production of the great St. Augustine,[3] though this had been rightly denied by St. Thomas Aquinas (ob. 1274).

The conclusions to be drawn from the foregoing investigation are as follows:—

The "De Mirabilibus" was written in Ireland in the year 655 by an Irishman

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[1] "Catalogi Bibliothecarum Antiqui," Bonnae, 1885. It is not clear what work is intended in the following entry in the catalogue of the monastery of Saint-Evre at Toul, drawn up about 1084, No. 47: "Augustinus de mirabilibus mundi" (Becker, *loc. cit.*, p. 150).

[2] "Ueber mittelalterliche Bibliotheken," Leipzig, 1890.

[3] Thomas Hibernicus, writing in 1306, quotes from it under the title, "Augustinus li. de mirabi. sacrae scripturae" ("Manipulus Florum," Venice ed., c. 1495, sub voc. *Poenitentia, l.*). Franciscus de Mayronis (d. 1327), in his "Flores secundum Augustinum" (MS. Bodley, 393), has also given excerpts from it (cf. Schenkl, "Wiener Sitzungsberichte," Phil.-Hist. Classe, 123, Abhl. v, p. 43).

whose name cannot now be ascertained. The author had been exhorted to compile the work by his father Eusebius "while the latter still lived,"[1] and by a number of "Christian" bishops and priests, and compelled to do so by order of his master, whose name is not given. Advice or material for the work had been apparently furnished by two other ecclesiastics, Bathanus and Manchianus, possibly to be identified with Baetan Mac-Ui-Cormaic, abbot of Clonmacnoise, who died in 664, and Manchene of Mondrehid, who died in 652.

Barely sixty years after its compilation the "De Mirabilibus" had already come to be regarded in Ireland as a genuine production of the great St. Augustine. This was apparently due to the insertion, either inadvertently or deliberately, of a dedicatory heading in which the African doctor is clearly designated as the author.

III.—The Biblical Citations.

The study of the biblical citations presents certain difficulties owing to the want of a critical text of the "De Mirabilibus." The following remarks are therefore put forth with all due reserve[2]:—

Scriptural events are usually related by the author in his own words, but in some fifty-one passages he is apparently citing textually. Of these twenty-nine come from the Old Testament and twenty-two from the New. Of the twenty-nine from the O.T. fifteen agree with the Vulgate and fourteen do not; and of those from the N.T. nine are Vulgate and thirteen

[1] Prologue, Ed. col. 2149: "Beatissimi, dum adhuc viveret, patris mei Eusebii," etc. Reeves (*loc. cit. supra*, p. 515) interpreted this to mean his *spiritual father*. It may be well to mention here the extraordinary views put forward on the subject of the "De Mirabilibus" by Bruno Krusch ("Neues Archiv der Gesellschaft für ältere deutsche Geschichtskunde," ix, 1884, pp. 158-159): "Ausser Cummianus hat auch der *irenfeindliche* Verfasser der 'Mirabilia' von dem gallischen Paschale Gebrauch gemacht." Further: "Im letzten Jahre des 11 Cyclus, bemerkt der Verfasser der Mirabilia, starb der *irische Manichäer, d. i. kein anderer als Bischof Aedan von Holy Island*, der in der That, wie wir sahen, 651 das Zeitliche segnete." Also: "Der 12 Cyclus begann 652, und im dritten Jahre desselben, also 654 ist die Berechnung geschrieben, *offenbar im Reiche Oswius*, wo damals schon durch Pilger, welche Gallien und Italien durchstreift hatten, der romische und fränkische 'Computus paschae' sehr verbreitet waren." Comment is needless.

[2] See also an excellent note by Haddan (ap. Haddan and Stubbs, "Councils and Ecclesiastical Documents relating to Great Britain and Ireland," i, 1869, pp. 170 *sq.*, especially pp. 186-187).

are not. I subjoin these latter, with the corresponding Vulgate passages[1] in parallel columns :—

"De Mirabilibus."	Vulgate.
Col. 2153 : *Vidi* Satanam sicut fulgur de caelo cadentem.	Luc. x. 18 : *uidebam* s. s. f. d. c. c.
Col. 2153 : Discedite a me maledicti in ignem aeternum *quem praeparauit Pater meus*[2] diabolo et angeli s eius.	Matth. xxv. 41 : d. a. m. m. i. i. a. *qui praeparatus est* diabolo et angelis eius.
Col. 2153 : *Ipse ab initio mendax est* et in ueritate non stetit.	Joh. viii. 44 : *ille homicida erat ab initio* e. i. u. n. s.
Col. 2153 : *Non enim angelos, sed Abrahae semen apprehendit Deus.*	Hebr. ii. 16 : *nusquam enim angelos apprehendit, sed semen Abrahae apprehendit.*
Col. 2154 : *Erunt* sicut angeli dei in caelo.	Matth. xxii. 30 : *sunt* s. a. d. i. c.
Col. 2157 : uolucres caeli nidos habent *ubi requiescunt.*[3]	Luc. ix. 58 : uolucres caeli nidos habent.
Col. 2195 : *Hic est* filius meus dilectus, in *quo sibi anima mea complacuit.*	Luc. iii. 22 : *tu es* f. m. d. i. *te complacuit mihi.*
Col. 2198 : *Haec infirmitas* non est ad mortem sed *ut filius hominis per eam clarificetur.*[4]	Joh. xi. 4 : *infirmitas haec* non est ad mortem sed *pro gloria dei ut glorificetur filius dei per eam.*
Col. 2198 : Et sublatus *repertus est* mortuus.	Act. xx. 9 : Et sublatus est mortuus.
Col. 2198 : Nolite turbari, anima enim *eius* in eo est.	Act. xx. 10 : n. t. a. e. *ipsius* i. e. e.
Col. 2199 : Hi omnes testimonio fidei probati *inventi sunt*, non acceperunt repromissionem *a* Deo pro nobis melius aliquid providente, *uti ne* sine nobis consummarentur.	Hebr. xi. 39, 40 : *et* h. o. t. f. p. [inventi sunt om.] n. a. r. [a om.] d. p. n. m. a. p. *ut non* s. u. c.
Col. 2200 : *Resurget* corpus *spirituale.*	1 Cor. xv. 44 : *surget* corpus *spiritale.*
Col. 2200 : Nolite *habere* aurum neque argentum.	Matth. x. 9 : n. *possidere* a. n. a.

[1] For the Gospels and Acts I have employed the splendid critical edition of Wordsworth and White ("Novum Testamentum Latine," Oxford, 1889-1905); for the rest of the Bible, Hetzenauer's Vulgate (Innsbruck, 1906).

[2] This reading is found in ten Old-Latin MSS. and in two Irish Vulgates, the Book of Armagh, and the Gospels of MacRegol; also in Fastidius and the Vet. Interp. Irenaei.

[3] This addition occurs in the form *ubi requiescant* in six Old-Latin MSS., and in two Irish Vulgates, the Books of Armagh and Kells.

[4] The reading *clarificetur* is found only in two Old-Latin MSS., Veronensis and Colbertinus.

Of the Old Testament citations, the following may be especially noticed[1]:—

Col. 2151: Qui facit magna et *inscrutabilia*,[2] etc.	Job. ix. 10: q. f. m. e. *incomprehensibilia*.
Col. 2151: Et consummavit Deus omnia opera sua in die sexto, et benedixit diem septimum, quod in ipso requievit ab omnibus operibus suis.[3]	Gen. ii. 2, 3: Compleuitque Deus die septimo opus suum quod fecerat: et requievit die septimo ab uniuerso opere quod patrarat. Et benedixit diei septimo; et sanctificauit illum: quia in ipso cessauerat ab omni opere suo quod creauit Deus ut faceret.
Col. 2152: ascendam super altitudinem nubium, *et aedificabo thronum meum ad aquilonem, et ero similis Altissimo.*	Isai. xiv. 14: a. s. a. n. [e. a. t. m. a. a. e. om.] *similis ero Altissimo.*
Col. 2153: Terra es, et in terram ibis.	Gen. iii. 19: quia puluis es, et in puluerem reuerteris.
Col. 2155: Crescite, et multiplicamini, et *implete*[4] terram.	Gen. i. 28: c. e. m. e. *replete* t.
Col. 2157: Aquae enim ibant et revertebantur.	Gen. viii. 5: At uero aquae ibant et decrescebant.
Col. 2158: Immisit Dominus ventum super terram, et diminutae sunt aquae.	Gen. viii. 1: adduxit spiritum super terram, et imminutae sunt aquae.
Col. 2163: Visitatione visitabit vos Deus, et efferte ossa mea hinc vobiscum.	Gen. l. 24: Deus uisitabit uos: asportate ossa mea uobiscum de loco isto.
Col. 2164: Qui *facit* angelos *suos* spiritus, et ministros *suos* ignem urentem.[5]	Psal. ciii. 4: Qui *facis* a. *tuos* s. e. m. *tuos* i. u.
Col. 2168. Erat *enim* quasi semen coriandri, *et* coloris bdellii, *album quasi nix.*	Num. xi. 7: Erat *autem Man* quasi semen coriandri, coloris bdellii.
Col. 2170: *Et* vocavit *nomen ejus Gersam*, dicens, *quia* advena fui in terra aliena.[6]	Exod. ii. 22: *quem* uocauit *Gersam*, dicens: Aduena fui in terra aliena.

[1] It must, of course, be borne in mind that we possess as yet no critical edition of the Vulgate Old Testament.

[2] It is impossible to agree with Lumby ("Greek Learning in the Western Church during the Seventh and Eighth Centuries," Cambridge, 1878, p. 3) that some of these readings come directly from the lxx. "En aucun cas on ne peut dire que les Irlandais aient corrigé leur texte d'après le grec" (Berger, "Histoire de la Vulgate," 1893, p. 34).

[3] This reading occurs in St. Augustine and in the old version of Irenaeus.

[4] So St. Augustine; but in Gen. i. 22, our author (col. 2197) has *replete* with the Vulgate.

[5] This reading agrees with the Sangermanensis Old-Latin MS. published by Sabatier.

[6] In Dan. iii. 49, 50, our author (col. 2190) agrees with the Vulgate, except that for *formax* he twice has *caminus*.

From the above examples we see that while a considerable number of our author's biblical citations come directly from the Vulgate, a somewhat larger proportion does not, and can be traced to the Old-Latin Version. Several other readings do not, as far as we are aware, occur elsewhere.[1]

It is also interesting to note that our author, doubtless following St. Jerome ("Comm. in Danielem" xiv, 1, ap. Migne, "Patrol. Lat.", 25, col. 610), excludes the apocryphal additions to Daniel, viz. the story of Bel and the Dragon and the translation of Habakkuk, as wanting the "authority of the Divine Scriptures."[2] A little further on he rejects for the same reason the deuterocanonical Books of Maccabees.[3] Here he was probably relying on the authority of Pope Gregory the Great, ("Moralia," xix, 34, ap. Migne, "Patrol. Lat.," 76, 119).

IV.—NOTES ON THE "DE MIRABILIBUS."

Our study of the "De Mirabilibus" may be fitly brought to a conclusion with some remarks on the contents of the work, and on its Latinity.

In a short Preface (Ed. cols. 2149–2152), after excusing himself for his incapacity, the writer exposes the method by which he has been guided in the explanation of the leading miracles of the Old and New Testament. Leaving aside all allegorical and figurative interpretation, he proposes to demonstrate that in every case in which some occurrence should seem to fall outside the ordinary natural laws God is not creating a new nature, but simply ruling that which He had once created.[4] His material he divides into three books. The first in thirty-five chapters (cols. 2151–2174) deals with

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[1] Haddan (ap. Haddan and Stubbs, "Councils," etc., i, p. 188) came to the conclusion that there existed a special British and Irish revision of the Old-Latin version. The Irish text of the Vulgate Gospels is analysed by Chapman ("Notes on the Early History of the Vulgate Gospels," 1908, p. 177) as one containing three elements: (*a*) a strain of pure Hieronymian readings, (*b*) a considerable admixture of Old-Latin elements, and (*c*) certain well-defined Irish characteristics. It seems more probable that our author employed some such "mixed text" than that he quoted at times from a Vulgate and at times from an Old-Latin MS.

[2] ii, 32, Ed. col. 2191: "De lacu vero iterum et Habacuc translato in Belis et draconis fabulis, idcirco in hoc ordine non ponitur, quod in auctoritate divinae Scripturae non habentur."

[3] ii, 34, Ed. col. 2192: "In Machabaeorum libris, etsi aliquid mirabilium numero inserendum conveniens fuisse ordini inveniatur, de hoc tamen nulla cura fatigabimur: quia tantum agere proposuimus, ut de divini canonis mirabilibus exiguam, quamvis ingenioli nostri modulum excedentem, historicam expositionem ex parte aliqua tangeremus."

[4] I, 1, col. 2151: "non creare ibi novam naturam, sed gubernare olim creatam Deus putandus est."

the Pentateuch, the second in thirty-four (cols. 2173–2192) with the Prophetical Books, and the third in seventeen chapters with the New Testament (cols. 2191–2200).

The work is largely a compilation from previous patristic writings. Compare the following passages :—

I, 6, col. 2156: Verumtamen in his magistrorum quid intentio potuit excogitare, indifferenti sermone proferamus, nulli ex diversis opinionibus certiorem tribuentes auctoritatem; de quibus narrationibus, de singulis electionibus arbitrium probandi seu reprobandi concedimus libertatem. I, 7, col. 2157 : bina magistrorum aestimatio est. 1, 7, col. 2157 : Item de recessu aquarum diluvii quid docti et ingeniosi sentiunt, sine ulla nostrae auctoritatis praesumptione proferamus.

I, 7, col. 2159: Ego enim quod in hoc magistrorum quorumcumque eruditio contulit, litterulis his intimavi, in quibus si quid vitiosum, et minus sanae intentionis apparet, non illorum, sed mea titubavit intentio.[1]

I, 18, col. 2165: Multa sunt praeterea sanguinis genera per eamdem carnem, quae usque ad viginti tria physiologi dinumerant.

I, 28, col. 2171: At vero de ista Moysi Aethiopissa conjuge duplex magistrorum invenitur intentio.

I, 35, col. 2174: Duabus autem causis, ut sapientes aiunt.

II, 10, col. 2178: Et hoc loco quidam aestimant.

II, 15, col. 2180: Ut multi magistri putant.

III, 2, col. 2193: Sed et multae aves absque maribus ova gignere possunt. Et talem conceptum in multis piscium generibus esse physiologi aiunt.

III, 8, col. 2197: Ut militantes in Scytharum oris, ut antiqui ferunt, et super aequorum amnibus prolabant, natandi arte quoque imbuti, merso medio in profunda vix subeunt.

III, 11, col. 2198: De qua quaestione auctores una eademque sententia prolata non differenter dicunt.

With regard to the exceptional destiny of Enoch, the writer (i, 3, cols. 2154–55) expresses views which may be read in St. Augustine ("De Genesi ad Litteram," vi, 11, ap. Migne, "Patrol. Lat.," 34, col. 397) and elsewhere. On one occasion he appears to be relying on contemporary information :—

I, 7, col. 2158: Maria quoque extra terminos antiquos crescere consuescunt, et terrarum spatia diminuunt atque praescindunt, sicut et senes nostro adhuc tempore viventes, vidisse se confirmant.

[1] Elsewhere he discriminates; i, 7, col. 2158: "In his autem quamlibet diversis opinionibus et magistrorum plurimis ambagibus, hoc animo fixum suscipimus"; i, 17, col. 2164: "et ideo plurimi doctores plus dicunt"; i, 7, col. 2158: "Sed nonnulli auctores genera haec bestiarum et ferorum animalium, ipsam terram gignere dicunt . . . nostris tamen adhuc mentibus illa quaestio innodata residet."

The only author whom he mentions by name is St. Jerome.

I, 16, col. 2163: De quo ligno sanctus Hieronymus in explanatione altaris lignei, quod in civitate per visionem Domini in Ezechiele ostenditur, refert, quod quasi lini colorem habeat.[1]

I, 28, col. 2171: De qua [Aethiopia] in ecclesiastica historia scribitur quod ex parte Indiae adhaeret.[2] Et in Chronicis Canonicis Eusebii refertur, quod Aethiopes ab Indo flumine consurgentes juxta Aegyptum consederunt.

In this latter passage our author is citing textually from St. Jerome's Latin translation of the Chronicle of Eusebius.[3]

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[1] The reference here is to Jerome, "Comm. in Ezechielem," xii, ap. Migne ("Patrol. Lat.," 25, col. 421 B, C).

[2] Cf. Esther i. 1; viii. 9; xiii. 1; xvi. 1.

[3] Migne ("Patrol. Lat.," 27, col. 158).

III.

THE "SECRETS OF SALERNO": AN ANCIENT FRENCH MANUSCRIPT IN THE POSSESSION OF THE ROYAL IRISH ACADEMY.

By M. ESPOSITO, B.A.

Read December 9, 1918. Published March 27, 1919.

The MS. classified 24. G. 8 in the Library of the Royal Irish Academy has never hitherto been described. An account of it would have appeared in due course in the present writer's "Inventaire des anciens manuscrits français des bibliothèques de Dublin," but the publication of that work having been suspended for an indefinite period after the appearance of Part I in 1915 (*vide* "Revue des Bibliothèques," tome 24, 1914 [pub. 1915], pp. 185–198, and "Romania," tome 44, 1915, pp. 131–135), it may not be inappropriate to lay before the Members of the Academy a description of this most valuable and interesting MS.

It is a splendid folio volume, consisting of 202 numbered vellum folios, measuring 342 mms. by 24 mms., written in double columns, with 35 lines to the column. The ruling on each page shows 35 horizontal lines and four vertical ones. The text is the work of one hand, and is in the very best style of early fifteenth-century French handwriting.[1] The entire MS. is taken up by one work, a treatise in the French language on Simple Medicines, arranged in alphabetical order, and illustrated with several hundred beautifully executed paintings of plants, and of a few other objects—*e.g.*, mercury in a bowl (f. 3a), a fish (13a), a vessel of wine (15a), bitumen (17a), shells (27a), butter (28b), coral (45b), resin (*colofoine*, 49a), *dragantum* or *cuperos* (64b), *emathiste* (73b), *la piere de l'azur* (105a), various minerals (115a), a skeleton in a coffin (124b), a mortar and pestle of lead (157a), slabs of soap (178a), pumice-stone (199a). A scandal hand has cut out paintings on ff. 16, 76, 84, 90, 96, 99, 100, 120, 137, 149, 181, 195. In a number of places (ff. 21b, 58a, 70b, 74b, 88b, 92c, 93a, 104b, 106b, 108b, 120a, 139c, 142b, 144a, 146a, 151b, 157b, 166b, 168c, 169c, 170a, 181c, 183b, 185b, 192b, 200b) blank spaces have been left by the artist, possibly because specimens of the plants to be

[1] An expert would probably be able to decide in what part of France the MS. was executed.

illustrated were not forthcoming, or more probably because there were similar blanks in the exemplar from which he copied. Each chapter is introduced by a large gold initial, ornamented in blue and red, and each sentence begins with a plain capital, inlaid with a patch of yellow. A single page (f. 1a) is adorned with a flowery border, ornamented in gold, green, blue, and red.

There are no marginal notes or entries, and there is nothing in the binding, which is a common modern one, that would give us any clue as to the provenance of the volume. The only indication of this kind that we have been able to discover is the note, "14 Decr. 42" (14 December, 1842?), written in a modern hand at the foot of f. 202a. Extraordinary as it may appear, the Minutes of the Academy do not contain any record as to how or when this remarkable MS. was acquired.

The following extracts will serve to give a general idea of the nature of the treatise contained in this MS., which is of interest and importance not only to students of the history of Materia Medica, but also to those of French Lexicography.[1]

There is no heading or title to the work, which commences on f. 1a with a short introduction:—

En ceste presente besongne est nostre propos et intencion de traicter des simples medecines,[2] et pour ce qu'elle est telle comme nature la produite est appellee la medecine simple, comme girofle et noix muguete; ou iasoit ce qu'elle soit preparee par artifice touteffoiz elle n'est point meslee auec aultre medicine si comme les tamarins lesquielz par artifice sont cassez, et en sont les escorchez ostees. Et aussi l'aloen qui par artifice est fait du ius de une herbe cuit. Mais l'en pourroit faire question assez raisonnable pour quoy l'en trouua les medecines composeez, puisque toute vertu est trouue es compostez est trouuee es simples. Car toute medicine qui est contre la cause de la maladie est pour la superhabundance des humeurs, pour la diminucion d'iceulx ou pour arrester les courans. Ou elle est contre la foiblesse des vertuz par alteracion des qualitez, ou solucion des continuitez . . .

This introduction ends on f. 1b:—et comme on les sophistique, et comme l'en les cognoist, et combien on les peult garder, et quellez vertuz ilz ont, et comment on les doit administrer. Et sera ce traicte par les lettres de A. b. c. d. e. f. g. et cet.

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[1] In the following extracts we have reproduced the punctuation and orthography of the MS. as closely as possible. For such forms as *quelle, nest, len, lerbe, loste, lun, lautre, diceulx, dune, quil, sen, cest*, etc., we have written in accordance with the recognized usage, *qu'elle, n'est, l'en*, etc.

[2] Lower down we find the spelling *medicine*.

Then follows an alphabetical index of 46 articles commencing with the letter A. Similar lists occur at the beginning of each letter. Thus under B there are 22 articles; C, 52; D, 7; E, 19; F, 21; G, 20; H, 8; I, 14; L, 35; M, 36; N, 11; O, 11; P, 40; R, 14; S, 61; T, 14; V, 11. There are no lists for X and Z, which contain respectively one (Xilecrates) and five articles.[1] These lists are apparently not always in agreement with the actual number of articles described. Thus under A we count only 41 descriptions; under B only 20; under E only 18. This is a matter for further investigation.[2]

The letter A occupies ff. 2a–21b and begins thus :—

Aloen est de seche et chaulde complexion ou second degre. Aloen est[3] fait du jus d'une herbe qui est appellee aloen, mais nous l'appellons jubar. Cesta herbe cy ne croist pas seulement en Inde, en Perse, en Grece, mais en Puille. Et sont trois manieres de aloen; cicotin, epatic, et cabalin. Et est fait aloen en ceste maniere: l'erbe pilee et puis l'en esparme le jus, et est mis au feu iusquez a tant[4] qu'il boulle. Et quant il bost l'en l'oste du feu et est mis au soleil sechier. . . . . .

f. 178a: Sauon est chault et sec, et en est de trois manieres: l'un est appelle sauon sarrasin, l'autre sauon a juifz ou spatarent pour ce que les juifz s'en lauent, l'autre sauon galique ou francois. Le sauon sarrasin est fait d'une lexive appellee capitellum et de huile d'oliue boullis ensemble jusques a tant qu'ilz soient espes. Le galique ou francois est fait de ce capitellum avec suif de mouton, et est blanc moult. Et le spatarent aux juifz est fait du sarrasin avec moult de autres choses chauldes. Capitellum de quoy l'en fait ces sauons, est fait de lexive faicte de forte cendre en laquelle l'en met de la chaux vive tremper par troys iours et puis soit coulee, et ce qui en ystra le premier c'est capitellum. . . . . .

The last article in the work (f. 202a–202b) is :—

Zucara. C'est sucre. Il est chault et moite attrempeement. Et dit Ysaac qu'il est chault au commencement du premier degre et moite ou mylieu. Et oultre dit. . . . . .

It ends on f. 202b, col. 2 :—

Sucre vault moult a ceulx qui ont touz et a ceulx qui ont soif par chemin es regions chaudes quant l'en ne peuet trouuer autre liqueur. Il est bon a ceulx qui sont sechiez et amaigriz par malladie et a ceulx qui ont courte alaine par seichete de poictrine. Et le doit on mesler auec leurs beuvraiges

[1] The total is thus 448.

[2] Compare the memoir of Camus (pp. 65-66), which will be cited below.

[3] The word *est* is erased.

[4] The MS. has *atant*.

et viandes car il les fera entrer en char et les amoitira. Et pour euiter prolixite cy est la fin de ce liure ouquel sont contenuz les secretz de Salerne. Deo gracias. Explicit.[1]

The treatise described above is manifestly not an original work. After a considerable amount of investigation among the medical books current during the later Middle Ages, I discovered that it is a translation with large additions and many alterations of a Latin alphabetical dictionary of pharmaceutical plants entitled "Liber de Simplici Medicina," or better known, from its opening words, as the "Circa instans," which was compiled towards the end of the twelfth century by a physician of the School of Salerno named Platearius.[2] This Latin work was printed[3] several times towards the end of the fifteenth century and also during the sixteenth, since when it fell into almost complete oblivion (*vide* a valuable note by M. Charles Joret in "Romania," tome xvi, 1887, pp. 593–594).

The French translation[4] contained in the Academy's MS. is neither unique nor unknown, for I find it to be identical with that which occurs in the French MS. numbered 28 in the Regia Biblioteca Estense of Modena. The latter MS., which is also of the fifteenth century, is unfortunately defective, owing to the loss of several folios. An account of it, with two small photographic facsimiles of the beginning and end, and a number of extracts from the descriptions of plants, with valuable botanical notes, was published by Signor Giulio Camus in a monograph entitled "L'opera Salernitana '*Circa Instans*' ed il testo primitivo del '*Grant Herbier en francoys*' secondo due codici conservati nella Regia Biblioteca Estense ("Memorie della Sezione di Lettere della Regia Accademia di Scienze, Lettere ed Arti in Modena," serie ii, vol. iv, Modena, 1886, pp. 55–57, 65–175). This memoir is of capital importance for the history of botany during the later Middle Ages.[5] Aided at times by the paintings, which, as in the Dublin copy, abound in the Modena MS., Signor Camus has succeeded in identifying practically every

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[1] It will be noticed that for consonantal *i* and *u* the scribe uses indifferently *i* and *j* and *u* and *v*. For *au* he writes sometimes *au* and sometimes *ou*.

[2] On the name and date of this writer consult the memoirs of Camus (pp. 49–54) and Joret (pp. 593–595), which will be cited further on.

[3] Along with the "Practica" of Serapion at Ferrara, 1488; Venice, 1497, 1499, 1530; Lyons, 1525; and with the "Dispensarium" of Nicolaus at Lyons, 1512, 1536; Paris, 1582.

[4] On the relations between the Latin and French texts, cf. Joret (*loc. cit.*, pp. 595–597). M. Paul Meyer ("Romania," 44, 1915, p. 176) aptly remarks, "les recherches qui ont été publiées à ce sujet ne sont pas suffisantes."

[5] Camus (pp. 53–54) points out that Platearius may be ranked with Dioscorides and Pliny as one of the most important figures in the history of botany.

plant mentioned in the treatise (*vide* Joret, "Romania," xvi, 1887, pp. 589–597).

On comparing the extracts given by Camus with the text of the Dublin copy, we find that the two MSS. agree well in general, though there are numerous orthographic and verbal differences. At times the Dublin MS. gives a more correct reading than the Modena one. Thus, in the article *Apium*, where the Modena text has the corrupt '*Et je Plentaire ay veu par experience*' (Camus, *loc. cit.*, p. 66), the Dublin MS. reads correctly '*Et je Plateaire*,' etc. (f. 5a, col. 2, line 14). The addition in the Modena MS. of the words '*un nouvel acteur appellé Gentil*' not found in the original Latin of Platearius, in the chapter *Soldanca* (Camus, p. 66), does not occur in the Dublin copy (f. 187ab); but another interpolation not in the Latin, in the article *Spinacchia*, '*un auteur appellé Tacuin*' (Camus, p. 66), does occur (f. 187b, col. 2, l. 7). It is worthy of note that the form '*experimentateur*,' which occurs in the Modena MS. in the article *Coriandria* (Camus, p. 67), appears in the Dublin copy (f. 60b, col. 1, l. 31) as '*experimenteur*.'

The treatise contains the names and descriptions of nearly 500 plants. It is thus easy to realize its interest and value to students of mediaeval French lexicography and to those of the history of botany. The name of the French translator is unknown. His language (as judged from the Dublin and Modena MSS.) suggests that he is to be assigned to the late fourteenth or to the early fifteenth century (Camus, p. 67), and to Northern France.[1]

Signor Camus, whose merit it is to have been the first to make known this particular version of the work of Platearius,[2] has stated (*loc. cit.*, pp. 53, 54–55) that the Modena copy is the only one in existence at the present day, for a second one, which he had learned to have been formerly preserved in the Royal Library at Koenigsberg, had been noted as missing since the year 1858, and no trace of it had ever been discovered. This view is, however, not accurate, for, in addition to the Modena copy and to the Dublin copy described above, numerous MSS. of the work are in existence. Thus the Bibliothèque Nationale at Paris possessed in 1878 no less than eleven copies, all of the fifteenth century, which are enumerated in the inventory of the late M. Delisle ("Inventaire des MSS. Français de la Bibliothèque Nationale," tome ii, Paris, 1878, pp. 227–229), and since 1878 a twelfth has been added

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[1] Camus (p. 68) states that the dialect of the Modena MS. is that of Central France, but according to M. Joret ("Romania," xvi, 1887, p. 591), "ce manuscrit est l'œuvre d'un Bas-Normand."

[2] For the date of Platearius, cf. V. Rose, "Egidii Corboliensis Viaticus," Lipsiae, 1907, p. xiii.

to that Library (Nouv. Acq. franç. 6593). There are also copies dating from the fifteenth century, in the Royal Library at Brussels (MS. 5874), in Dijon 391, Metz 1170, and Paris, Arsenal 2888.

In conclusion it may be pointed out that, in addition to the work we have been dealing with above, there are extant two other French translations of the treatise of Platearius:—

(1) A translation made in the thirteenth century, which has been published by Dr. Paul Dorveaux ("Le Livre des Simples Médecines," Paris, 1913. Société française d'histoire de la médecine; cf. a valuable note by the late M. Paul Meyer in "Romania," tome 44, Juillet-Octobre, 1915, pp. 175-180, 187-190).

(2) An incomplete one made in England in the fourteenth century, which was brought to light by M. Paul Meyer ("Romania," tome 37, 1908, pp. 520-521). It has not been printed.[1]

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[1] A manuscript of the original Latin work of Platearius was at one time preserved in the Library of Trinity College, Dublin. It is now missing (cf. Bernard, "Catalogi MSS. Angliae et Hiberniae," ii, pars 2. 1697, p. 44, "763. Tractatus de simplicibus medicinis, init., *Circa instans.* 8vo, membr. H. 57").

IV.

SOME INVESTIGATIONS ON THE SOUTERRAIN.

By H. C. LAWLOR.

(Plate VI.)

Read May 14, 1917. Published March 27, 1919.

During the summers of the three years, 1914–1916, under the auspices of the Belfast Natural History and Philosophical Society, I had the privilege of making some extensive investigations in a considerable number of souterrains in the counties of Antrim and Down. Minute descriptive accounts, with plans of each cave, and of the articles found therein, are given in full in the reports of that Society for the years 1916 and 1917.[1] The illustrations accompanying the present abstract are reproduced (by kind permission) from these reports. The numerous articles found during the excavations became, according to arrangement, the property of the Society's museum.

As many of the objects in this collection seemed to be of unusual interest, and as a special collection of souterrain remains does not seem hitherto to have been made, the Belfast Society, on my suggestion, offered the collection on loan to the Royal Irish Academy, for temporary inclusion in their collection in the National Museum, which offer the Council of the Academy accepted; the collection is at present displayed in the museum.

It is no part of this abstract to repeat the already published details of the investigations, except such as bear on the loan collection and the very instructive deductions one may draw from examination of it. Of the vast quantity of domestic pottery found in the various souterrains, probably 95 per cent. is all of one distinct unvarying type; no objects of this type bear any ornamentation further than perhaps a few thumb-nail dents on the rim or strengthening band; they are all purely hand made by crude and primitive potters who had no knowledge of the potter's wheel, and no knowledge of finishing with a smoothing surface paste; they present no variety; the type clearly represents the pottery in use at the time the caves were made, and when that mode of dwelling came into fashion; this has, I think, been clearly shown to be the period from the sixth to the eighth century. The distinct uniformity and absence of progressive variety of type in souterrain pottery in themselves

[1] Reports and Proceedings of the Belfast Natural History and Philosophical Society, 1917, pp. 31–61; and 1918, pp. 77–103.

seem to show that the custom of constructing underground houses, although widespread while it lasted, was not of very long duration.

In my recent excavations in raths, of which I have now completed several, while I find the souterrain type unmistakably in evidence, it is mixed pretty equally with other types showing progress of fashion, and the development of the potter's art, all contributing to suggest, generally speaking, a greater length of occupation. The absence of variety in the fictilia of the caves conversely implies shorter occupancy as dwellings; but it is known that as storehouses, hiding-places, and even as poor men's shelters, they continued to be used to a gradually decreasing extent for hundreds of years.

The remaining 5 per cent. of pottery found in the caves includes a few fragments of a wheel-turned pot found in Ballymartin cave, and one or two fragments showing mediaeval glaze, where the cave had been used in comparatively recent times. In my references to our excavation at the foundry remains at Ballykennedy, I endeavoured to show that up to about the eighth century the Irish potters had not adopted the potter's wheel, and that the earliest wheel-turned pots are of about this date and later. In the Loan Collection is one fragment of pot found in a sandhill kitchen-midden near Groomsport, which I have included to show this mark of progress in Irish pottery. That this is of about the tenth century, I have since found confirmation, by the discovery of an exactly similar fragment in the priest's kitchen inside the stone church of Ballymartin, Co. Antrim. Other signs of progress in the potter's art, illustrated in the collection, may be seen in the finishing of the surface of the pot with a separate fine-ground paste. No examples of this pottery were found in the souterrains, though a few are shown from the sandhills. A bowl of this ware was also found in the Ballymartin church priest's kitchen.

In most of the caves excavated, a few flint flakes were found; these, with those found in the Ballykennedy cave, are chiefly remarkable for their extreme crudeness: that they were found, however, a few in each cave, is remarkable, as showing that their use seems to have continued into the late Iron Age. No authenticated instances are known where arrow-heads or finely worked flints occur in connexion with souterrains.

In all my excavations in cave dwellings I only found one single article of personal adornment—part of a child's bracelet of coarse jet or slate. That no implements of bone or wood survive is not surprising, as all the caves excavated were exceedingly damp, and all such objects must have long since rotted away.

The geographical distribution of the souterrain in the United Kingdom is worthy of note. In England and Wales none are found, except in the Duchy of Cornwall. In Scotland they are found only in the eastern half, between

the Forth and Moray Firths,[1] that is, the principal Pictish section of Scotland: there they are commonly known as Picts' houses. In Ireland they are exceedingly numerous in Antrim, Down, Cork, Kerry, Clare, and Galway; and numerous in Waterford and Louth, Derry and Tyrone. I believe none, or at any rate very few, are found between the rivers Boyne and the Slaney; and, taking a line roughly from this area north-west right across Ireland to Leitrim and Mayo, I believe that whole district is practically without them. Can it be that a considerable section of the Irish in the south-west and north-east, early in the Christian era, and the Picts of Scotland were of a common stock?[2]

In addition to the pottery and rough flints, other implements found in the caves investigated included spindle-whorls (2), stone-hatchet (1), leather-tanner's smoothing-stone (1), iron javelin-head (1), fragments of querns (several), whetstone (1). Many remains of iron implements were found, but, with the exception of the javelin-head above mentioned, so corroded as to render it impossible to identify their original form or use.

It has been urged that from the excessive dampness prevailing in the great majority of souterrains, they could not possibly have been used as dwelling-houses. In their present damp and often flooded state they certainly could not, as even where the floors are drained, moisture continually permeates from the exterior. The prevention of this drawback, however, would have been so simple that one can hardly conceive it possible that the souterrain in ancient times was in the least damp. Dr. Munro, in discussing similar structures in East Scotland, cites evidence to show that probably surface dwelling-houses or huts were superimposed on the souterrains.[3] As such houses would naturally have been built of wattles and mud, no trace of them can now survive, as even the hearth sites have been long since removed in the process of agriculture. Dr. Munro[4] quotes a passage from Tacitus, describing the manners and customs of some of the German tribes; the passage seems to correspond so exactly to what a contemporary description of an Irish souterrain would probably have been that I venture to repeat it. He says: "They also dig subterranean caves and cover them over with a great quantity of dung. These they use as winter retreats and granaries, for they preserve a moderate temperature; and upon an invasion, when the open country is plundered, these recesses remain unviolated, either because the enemy is ignorant of them, or because he will not trouble himself with the search."

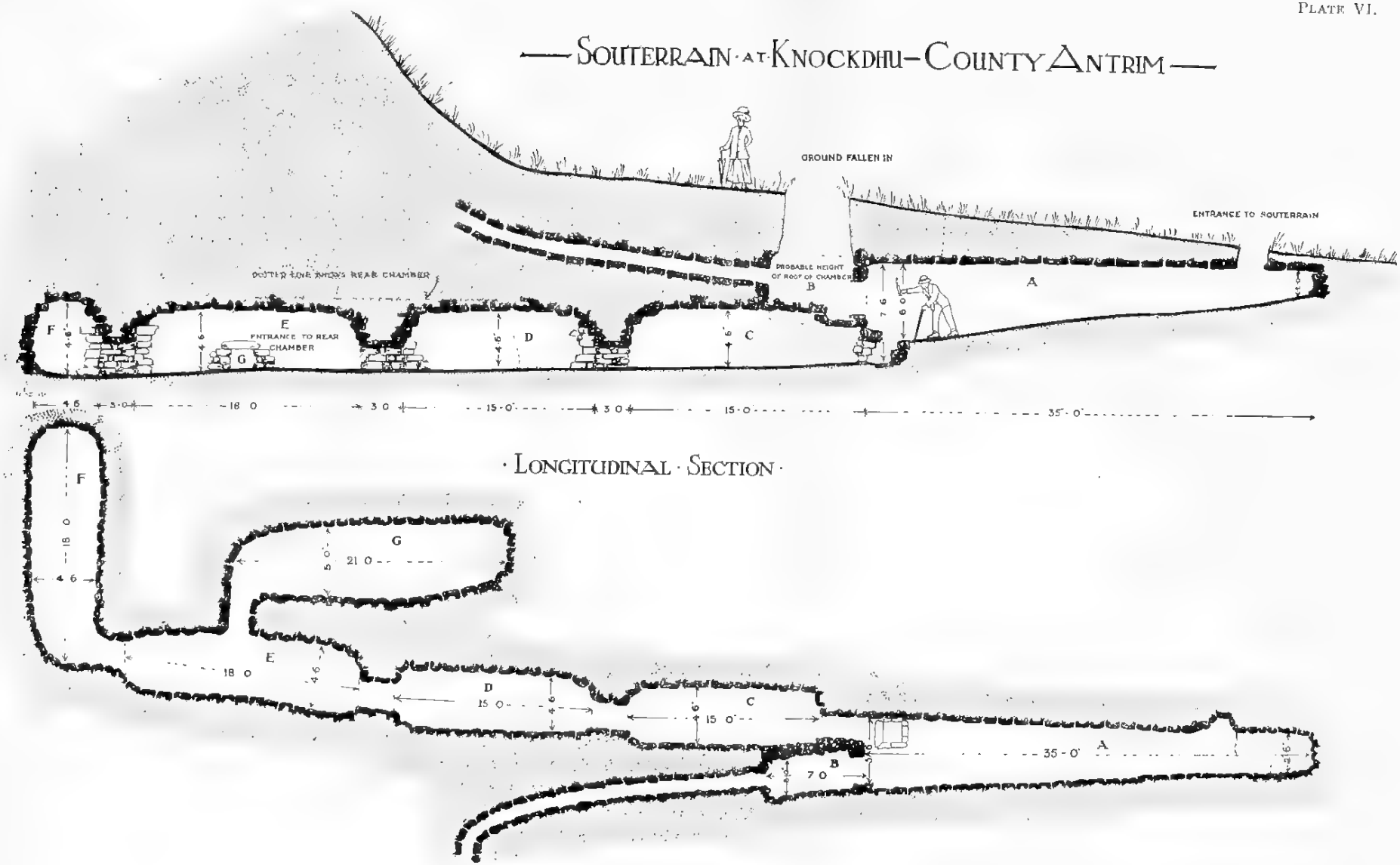
[1] Munro, "Prehistoric Scotland," pp. 342, *et seq.*

[2] For an account of the Picts' houses of Scotland, see Munro, "Prehistoric Scotland," pp. 342, *et seq.* Also, "The Underground Life," by David MacRitchie; privately printed Edinburgh, 1892.

[3] "Prehistoric Scotland," pp. 349-50.

[4] *Ib.*, p. 356.

SOUTERRAIN AT KNOCKDHU—COUNTY ANTRIM



H. C. Lawlor.

It is probable that all souterrains were thus protected by a covering of dung or thatch. Some had a superimposed hut, probably built of wattles and mud, with thatched roof, serving the same purpose. In Donegore cave, in excavating the two upper chambers, which were completely filled up and without any roofing-stones, the floor-level was only about four feet below that of the surrounding ground; from this we may assume that the two upper chambers were only semi-subterranean.

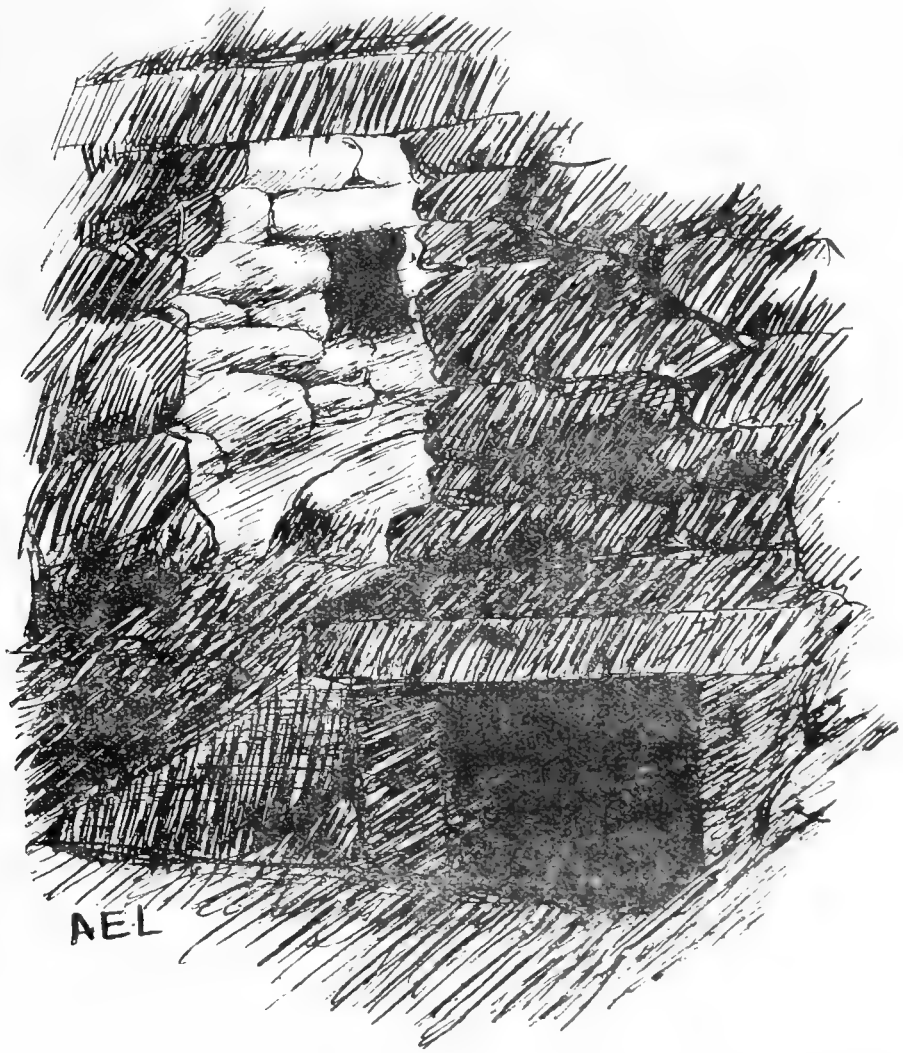


FIG. 1.

KNOCKDHU SOUTERRAIN, showing end of first chamber, with, to the left, doorway upwards, and mouth of ventilating shaft; and to right, secret trap-door, by the covering of which five chambers could be completely hidden from intruders.

V.

RICHARD TALBOT, ARCHBISHOP AND CHANCELLOR (1418–1449).

By JOHN HENRY BERNARD, D.D., D.C.L.,
Lord Archbishop of Dublin.

Read January 13. Published March 29, 1919.

Richard Talbot, who became Archbishop of Dublin in 1418, was the younger son of Richard, fourth Baron Talbot, by his wife Ankret le Strange. The Talbot family, one of the oldest and most illustrious in England, were established at Goodrich, near Hereford, in 1326, when an earlier Richard Talbot married Elizabeth de Comyn, heiress of Goodrich Castle (in right of her mother, daughter of Aylmer de Valence, earl of Pembroke).

The first appearance of the future Archbishop is in connexion with ecclesiastical preferment in the diocese of Hereford. It was the habit of the age to provide for State officials and members of great families by appointing them, although they might be only in minor orders or even laymen, to Church benefices; and the Talbot family influence was used to secure many Herefordshire preferments for the younger son. The date of his birth is not known, but he was probably a minor, as he was certainly a layman, when he was made Portionist of Middlecourt in Bromyard Church on 22nd October, 1399, and Canon and Prebendary of Putson Major in Hereford Cathedral on 6th June, 1401.[1] On 24th January, 1404, being by this time also rector of Ludlow, Talbot received a dispensation for absence for one year, to study; and, six days later, letters dimissory to be ordained to all orders. He did not, however, proceed elsewhere to more than minor orders, for he was only ordained deacon in Hereford Cathedral, on 26th March, 1407. Next month (April 26th) he became Portionist of Overhall in Ledbury Church. In the following July he exchanged his rectory of Ludlow for the Precentorship of Hereford. As Precentor he had a canonical residence house, which was probably his home for some time. In 1410, being now styled *Bach. utriusque juris*, Talbot added

[1] All details as to Richard Talbot's Herefordshire preferments have been most kindly supplied to me by Canon Bannister from the archives at Hereford.

to his other preferments the incumbency of Willey free chapel (January 15th), and the rectory of Kingsland (February 18th). This latter preferment he exchanged on 16th July, 1412, for the rectory of Old Radnor. On 26th October, 1412, he resigned the Precentorship of Hereford on his appointment as prebendary of Fridaythorpe in York Cathedral; and on 16th May, 1416, he resigned his Portion in Ledbury.

The list of his early preferments is, however, not yet exhausted; for he became Dean of Chichester in 1414, appearing in that capacity in Bishop Rede's Register on 6th March of that year.[1] His successor in the Deanery was in office in 1420, but it is not possible to determine the period of Talbot's tenure more exactly, nor is there any direct evidence that he was ever in residence at Chichester. The custom of that Cathedral required the Dean to be chosen out of the Chapter, so that Talbot may have held a prebend there in earlier days, along with his other benefices.

To be a pluralist on such a scale would be deemed scandalous in our time, but there was nothing unusual about it in the fifteenth century. It was the fashion of the age, as I have said, to provide for men who were intended for a career of statesmanship, by allocating the revenues of Church benefices to their support—a bad fashion, and one which was strongly criticized by the Lollards, who in this had reason on their side, and was soon to be swept away by common consent; but it must be remembered that in those days ministers of the Crown and ambassadors to foreign countries received no fixed salaries, and that there was nothing like our paid Civil Service.

Richard Talbot's life-work was determined for him while he was still a young man. His elder brother, the famous Sir John Talbot, afterwards the first earl of Shrewsbury, became Lord Lieutenant of Ireland in 1414. His eminent services in the French war entitled him to some reward from the Crown, and it was thought to be important to place a soldier at the head of the Irish Government, as Ireland was then in a deplorable condition of unrest. Shakespeare's picture of him is familiar:—

> ". . . . . the warlike Talbot, for his acts
> So much applauded through the realm of France."[2]

When he became viceroy of Ireland, he desired at once to avail himself of his brother's assistance; and in 1416 Richard Talbot was elected to the Archbishopric of Armagh, doubtless by the influence of the Crown. But he failed to secure confirmation of the appointment in time, and the papal

[1] For the facts as to Talbot's connexion with Chichester, I am indebted to the courtesy of Prebendary Deedes.

[2] 1 *Hen. VI*, ii, 2.

nominee, John Swayne, became Primate of All Ireland. However, in 1417, the Archbishopric of Dublin became vacant, and Talbot was put forward, duly elected,[1] provided by the pope, and consecrated in 1418.[2] Where the consecration took place is not known; but, as there is no record of it in the English episcopal registers, the place was, perhaps, Dublin, where Archbishop Talbot was at the centre of public business for the rest of his life. He crossed to Ireland in his brother's company on 2nd May, 1418.[3]

The first notice of his work in Ireland is in connexion with military operations. In July, 1419, his brother, the Lord Lieutenant, having gone to England (he never returned to Ireland), the Archbishop was appointed his deputy; and in that capacity he made a military excursion, in the course of which, according to the Chronicle of Henry of Marleburgh, "thirty of the Irish" were slain. This was not so extraordinary as it would seem to the modern mind. His predecessor, Archbishop Cranley, had marched at the head of his troops, and killed a hundred Irish at Kilkea: and about the same time, the Archbishop of York (Henry Bowett, who had formerly been Dean of St. Patrick's) led the English army against the Scots, when Henry V was in France. Richard Talbot came of a fighting stock, and he was always more of a soldier or a lawyer than an ecclesiastic.[4] In 1427 he raised a force of men-at-arms and archers, for the defence of the marches of Dublin against the Irish, and received the usual monetary grant in return from the Treasury.[5]

There never was a time when Ireland needed a strong, wise, and impartial government more sorely than at this period of Irish history. The descendants of the great Anglo-Norman knights who came over with Henry II had become jealous of each other, and were continually quarrelling among themselves, as well as with the native population. And the Irish had taken full advantage of the preoccupation of England with the French wars, which prevented due attention from being paid to the development of the resources of Ireland and

[1] His elevation is noted in Elmham's *Liber Metricus de Henrico V*°:

"Ricardus Talbot fert Dublinensis honorem
Metropolis, Praesul conditione valens."

See *Memorials of Henry V*, p. 163 (Rolls Series).

[2] He was provided by a Papal Letter of date 20th December, 1417, and the faculty for consecration was issued 31st January, 1418.

[3] Pat. Rolls (see Wylie, *Reign of Henry V*, p. 67).

[4] Canon Bannister tells me that in 1405, Prince Henry, assisted by a Talbot force from Goodrich, which may well have included the future Archbishop, defeated Owen Glendower's army at Grosmont, twelve miles south of Hereford.

[5] Tresham's *Chancery Rolls*, pp. 243, 244.

the reconciliation of her people.[1] Art Mac Murrough had shown himself to be a powerful and dangerous opponent of the English administration, and at the time when Sir John Talbot became viceroy, the authority of England was hardly recognized outside the Pale. In the neighbourhood of Dublin that authority was indeed established, but it was far from secure. And the frequent changes of viceroys, and the absence of any steady or consistent policy, worked mischief, the effects of which have not yet been undone.

In 1423 Archbishop Talbot was made Justiciar, and subsequently Chancellor—an office from which he was removed for a short time in 1426,[2] but to which he was reappointed, and which he held for a good many years, with intervals when a rival succeeded in ousting him. There were no circuits outside the Pale, as indeed the country was hardly accessible except to an armed force, and the Chancellor's jurisdiction was in fact limited to a small part of the Island, the Pale including only the counties of Dublin, Louth, Meath, and Kildare.[3] Violence and disorder prevailed; and the methods of government suggest that the cynical maxim of Cosmo de Medici that "States could not be governed by Paternosters" was literally accepted.

Archbishop Talbot did not always give satisfaction even to the English colony, and possibly this may mean that he tried to do impartial justice to all classes of the population. In 1429 he was summoned to England on the charge that he had failed to prohibit and prevent illegal and seditious meetings attended by armed Irishmen.[4] But as he retained the Chancellorship, he was probably able to satisfy the King's Government that he had acted for the best.

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[1] There is a significant sentence in an Act of Parliament passed at Drogheda in 1451, just two years after Archbishop Talbot's death, which illustrates the state of unrest in Ireland. The statute recites that Easter would fall late that year, and that Parliament "cannot be advantageously held after the said feast, on account of the impending wars of the Irish enemies of our lord the king, *who are wont to go to war immediately after the Feast of Easter.*"

[2] Tresham's *Chancery Rolls*, pp. 225, 227; Nicolas' *Acts of the Privy Council* III. 93, 212.

[3] In the remarkable poem, *The Libel of English Policy*, written in 1436, the author says (Wright's *Political Poems* II. 188):—

> "That wylde Yrishe so muche of ground have gotyne
> There upon us, as likelynesse may be,
> Lyke as England to sheris two or thre
> Of thys oure londe is made comparable,
> So wylde Yrishe have wonne unto us unable
> Yit to defende, and of no powere
> That oure grounde there is a lytelle cornere,
> To alle Yrelonde in trewe comparisone."

The author notes that he learnt from the earl of Ormonde some of his facts about Ireland, of which he gives an instructive picture.

[4] Tresham, *Chancery Rolls*, p. 249.

Talbot's most formidable opponent was his kinsman, Lord Ormonde, the fourth earl; and now one, then the other, was supreme. Within a period of twenty-eight years, Talbot was head of the Irish Government, either as Justiciar or as Lord Deputy, six times, and Ormonde five times. Talbot was in command for ten or eleven years in all.[1] In the Dublin Parliament of 1441 a petition was drawn up, requesting the king to appoint an English peer as viceroy instead of Ormonde; and it is significant that the Archbishop (with the abbot of St. Mary's, Dublin), was requested to take charge of it.[2] These unedifying and unfortunate quarrels continued for years, neither party yielding to the other.

The custody of the Great Seal was a frequent topic of controversy. In 1432 Talbot refused to give it up to Thomas Chace, the newly appointed Chancellor, on the plea that the letters patent which Chace produced before the Lord Deputy were not sufficiently explicit.[3] And in 1442 Ormonde, as Lord Lieutenant, refused to deliver the seals to Talbot, who was then Chancellor, because Talbot refused to produce *his* letters patent.[4] The upshot of this was that the Archbishop was superseded in the Chancellorship; and whether Ormonde was, technically, right or wrong, it it evident that neither man was of a conciliatory disposition. They were both summoned to England to answer for their conduct in 1442 and 1443, but nothing definite was arranged by way of compromise.[5] The only literary work ascribed to Talbot is a controversial treatise on the abuses of Ormonde's administration.[6]

Enough has been said already to show that the Archbishop was fully occupied with state business during his long tenure of office. He seems to have taken a special interest in the buildings of Dublin Castle. We have a deed of 1430 in which, as Judiciar, he granted 20 marks annually for the repair of the hall and towers of the castle, which had been damaged by storm, to the injury of legal records preserved there.[7] And in the next year, for some unrecorded reason, he descended in force upon the castle, cited the Constable

[1] The Archbishop's terms of office were: 22 July, 1419, to 10 Feb., 1420; 4 Aug., 1423, to 1424; 1430 to 1432; 1436 to 1440; 1445 to 1446; and 1447 to 5 July, 1449, when Richard Plantagenet, Duke of York, became Lord Lieutenant.

[2] Nicolas' *Acts of the Privy Council*, v. cxliii ff.; see also Gilbert. *Charters of St. Mary' Abbey*, i. xliv, 379.

[3] Tresham, *Chancery Rolls*, p. 253.

[4] Graves, *King's Council in Ireland*, pp. 295-303.

[5] Nicolas, l.c. v. cl, 250.

[6] Ware gives its title: "De abusu regiminis Jacobi Comitis Ormoniae, dum esset locum tenens Hiberniae."

[7] See Whitelaw and Walsh, *History of Dublin*, i, 53, and Gilbert's *Viceroys of Ireland*, p. 569.

and the Deputy in the King's name, and on their non-appearance seized the Constableship, and took measures for the safe custody of the castle, and the prisoners who were confined in it.[1] Certainly, he was a strong and masterful man.

We have memoranda of his having received grants of land, for his services, on several occasions—the estates of one Matthew St. John[2] (part of the manor of Trim), and also the manor of Newcastle Lyons with Tassagard.[3] This, indeed, was only what was customary at the time, and, as I have pointed out, in those days, statesmen were dependent on the favour of the Crown, or on Church patronage, for the means of supporting their great positions. Yet the evidence seems to show that Richard Talbot was specially forward in securing emoluments for himself and his friends, while at the same time he appears frequently to have been embarrassed by the need of money. His list of Herefordshire preferments has already been given. When Dean of Chichester he was indebted to the earl of Devon for £400, which—apparently—he did not repay.[4] In 1431 he pleaded for, and obtained, further respite in regard to the payment of fees due to the papal see for the pall, which had been delivered to him thirteen years before.[5] In a will made in 1438 by a baker belonging to the Gild of St. Anne,[6] the testator enumerates among the debts due to his estate, £10 owing for bread by the Archbishop of Dublin, of which the baker remits 40*s*., "so that the said Lord Archbishop may be favourable to Joan his wife." £10 was a large sum in those days.

He appears to have received £500 a year from the Irish Exchequer as Judiciar in 1419,[7] and he obtained for himself on 13 July, 1423, an allowance of 10*s*. a day, in addition to his accustomed fees as Chancellor. On 10 Feb., 1449, a mandate was issued for paying this allowance, Talbot being at this period Lord Deputy.[8] It is more significant, perhaps, that a grant which, when acting as Lord Deputy, he obtained for his esquire, John Charneles, of the office of the king's escheator, clerk of the market, and keeper of weights and measures, was annulled on appeal,[9] after his nominee had enjoyed the emoluments for nearly six years. And in 1451, his successor in the see of Dublin, Michael Tregury, made complaint to the papal see that a large part

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[1] Gilbert, *l. c.*, p. 578.
[2] Tresham, *Chancery Rolls*, p. 231.
[3] *Calendar of Patent Rolls*, 3 June, 1442.
[4] *Cal. of Patent Rolls*, 21 Oct. 1416.
[5] *Cal. of Papal Registers*, 12 Aug., 1418 ; cf. Brady, *Episcopal Succession*, I, 325.
[6] See *infra*, p. 224.
[7] Wylie, *Reign of Henry V*, p. 67.
[8] Whitelaw and Walsh, *History of Dublin*, i, 248.
[9] *Cal. of Patent Rolls*, 26 Nov., 1424 ; 8 May, 1430.

of the archiepiscopal *mensa* had been alienated by Talbot, and that his revenues were therefore inadequate to his station.[1] Mr. Wylie[2] points out that many Talbots appear in Ireland as holding positions of profit after Sir John's arrival as Viceroy; and it is tolerably plain that Richard Talbot had something of the acquisitiveness of his brother.

Yet the Archbishop was not wholly unmindful of the financial needs of the Church. We have several illustrations of this. In 1424 he reduced the proxies of the Augustinian monastery of All Hallows, Dublin, from 6 marks to 4.[3] In 1421 he reduced, in like manner, the proxies paid to the Archbishop by the prior and convent of Christ Church, which was alleged to be then impoverished by war and pestilence, from 10 marks to 5, and again in 1426 to 2½ marks.[4] In the Book of Obits of Christ Church Cathedral, the anniversary of the Archbishop's death (Aug. 15) is commemorated, and specially solemn observance of it prescribed (*pro quo fiant* ix *lecciones*), no doubt because of this relief to the convent. Ware notes that he established a chantry in St. Michael's Church, to which he gave parochial status in 1447.

Other chantries were established in Dublin at the same time. From the fifteenth century several of the ancient gilds of the city count their beginning. In 1418, for instance, the Gild of Merchant Tailors was founded, with a chantry in St. John's Church. And on 16th December, 1430, in like manner, Royal Letters Patent were issued for the founding of a chantry and the endowment of a chaplain in the Church of St. Audoen, in honour of St. Anne, together with a gild or fraternity of St. Anne, with permission to hold lands to the value of 100 marks annually, to support six chantry priests, who were to offer prayers in perpetuity for the king and the founders, of whom Archbishop Talbot is the first named. This Gild of St. Anne became a wealthy corporation,[5] and their chapel in St. Audoen's Church is still remembered. It is probable, indeed, that the introduction into the Letters Patent of Talbot's name is only a legal formality. His assent to the establishment of a chantry and a gild was necessary, both as archbishop and as prelate; and that he contributed to the endowment from his personal estate is not proved thereby. But, at any rate, he was an assenting party.

The ecclesiastical foundation by which Archbishop Talbot is best re-

[1] *Cal. of Papal Registers*, 16 Nov., 1451.

[2] *Reign of Henry V*, p. 66.

[3] The instrument is printed in full in Butler's *Register of the Monastery of All Hallows*, p. 75.

[4] *Liber Albus* of Christ Church, nos. 6, 61; see also *Christ Church Deeds*, 276 (calendared by the Deputy Keeper of the Irish Records).

[5] See, for a full account of it, H. F. Berry, *Proceedings of the Royal Irish Academy*, xxv., c., pp. 21 ff.

membered is the establishment of minor canons and choristers in St. Patrick's Cathedral. The circumstances are worth recording in detail. The prebend of Swords was the most richly endowed of all the Cathedral prebends, and for this reason it was eagerly coveted. For half a century, at any rate, before Archbishop Talbot's time, it had been held by important people, some of whom were never in Ireland, and few, if any, of whom performed any canonical duty in the Cathedral. The famous William of Wykeham, bishop of Winchester; Peter de Lacy, who was rector of Northfleet in Kent; Robert Crull, who became Lord Treasurer of Ireland; Richard Prentys,[1] "the King's clerk"; Thomas Polton, who held the prebend along with the see of Hereford[2]; and, finally, Branda de Castiglione, bishop of Piacenza, who was cardinal-priest of St. Clement's, were all canons of Swords in this period, and drew the revenues of "the golden prebend," as it was called. It may be suspected that the Archbishop thought it was time to put an end to this custom, and that the appointment by the Crown of an Italian cardinal to the richest canonry in Dublin was specially open to criticism. At any rate, he took steps to divide the revenues of the prebend of Swords into two parts, as soon as the cardinal ceased to hold it. One part was reserved as amply sufficient for future prebendaries. It is interesting to find that the prebendaries under this system were no longer great officials, but ordinary clergymen; and that the name of the first of them, Cruise, who must have been a party to the new arrangement, is that of a family resident and well-known at Finglas, where the archbishops had a manor and a country house.[3] It is probable that the complaisant prebendary, William Cruise, was a Finglas man and under the influence of the Archbishop.

However, that may be, the other part of the prebend of Swords was devoted to the endowment of six minor canons and six choristers, or children of the choir, in St. Patrick's Cathedral. The scheme was a good one; it was agreed to by the Chapters of St. Patrick's and of Christ Church (both of whom were consulted), by the Crown—the royal sanction was easy for the powerful Chancellor to obtain—and also by the Pope, whose formal confirmation is on record.[4]

The original charter is dated 4th February, 1432,[5] and it is interesting to

[1] Pat. Rolls, 21st July, 1413; 8th November, 1414.

[2] *Cal. of Papal Registers*, 21 July, 1420.

[3] Dr. F. E. Ball tells me that Archbishop Talbot's sister-in law, the wife of the viceroy, occupied Finglas Court for some time (see Wylie, *Reign of Henry V*, p. 67); and it is from the proof-sheets of his forthcoming history of that part of the Co. Dublin that I learn that Cruise was a Finglas name.

[4] *Dignitas Decani*, p. 72.

[5] It is printed in Mason's *St. Patrick's Cathedral*, Appendix, p. xxxiv.

notice that it gives, as the reason for the introduction of these new ministers of the Cathedral, the desirability of bringing the arrangements at St. Patrick's into conformity with those of Salisbury, that being the model from which the constitution of this Cathedral is derived.[1] When an archbishop, whose early traditions were bound up with Hereford (as we have seen) and not at all with Salisbury, cites in a formal instrument the custom of the latter Church, it is plain that the original connexion of St. Patrick's with Salisbury must have been a matter of common knowledge and of common pride in the fifteenth century.

These minor canons were to be in priests' orders, and their duties are exactly specified. They were to have no voice in the Chapter, nor any fixed stall in the Choir—an arrangement which still continues after the lapse of nearly five centuries, minor canons being only admitted and not installed.

Another Cathedral ordinance of Archbishop Talbot should be mentioned. It is dated 1st March, 1422, and is an order to the canons of Christ Church "to wear cloaks with grey fur outside, and menyver inside in solemn processions"—in other words, to conform to the usual dress of canons in cathedral churches. Incidentally, the ordinance tells us the accustomed order of procession when both chapters, that of Christ Church and that of St. Patrick's, were present. This had been arranged seventy years before by Archbishop de St. Paul,[2] and it is explicitly mentioned by Archbishop Talbot that in solemn processions the Prior of Holy Trinity (Christ Church) and the Dean of St. Patrick's together took the principal place after the Archbishop; then came the subprior of Holy Trinity and the Precentor of St. Patrick's together, and after them the canons of the churches, two by two.[3] The jealousy with which each cathedral guarded its own dignity explains the emphasis which was laid upon such details.

Richard Talbot was not the man to give away what he believed to be his rights, and it was inevitable that he should continue an old quarrel as to jurisdiction between the Archbishops of Armagh and Dublin, which had begun more than a century before his day. The main point in dispute was that the Archbishop of Armagh, as Primate of All Ireland, claimed the right to carry his metropolitan cross anywhere in Ireland, while on the other hand

[1] There was not, indeed, a *College* of Minor Canons at Salisbury, the only parallel or analogy being found in St. Paul's London. But the precedent put forward by Archbishop Talbot in his Charter is the fact that these officers of the Church existed at Salisbury; he does not imply that they had any corporate existence, which they did not receive until 1519. They were, and are, of course, distinct from the Vicars Choral, whose College was founded at a much earlier date.

[2] See his ordinance, 4th June, 1352, printed in the *British Magazine*, xxx, 511.

[3] Christ Church Deeds, no. 277.

it was urged that a metropolitan has no jurisdiction, and cannot exhibit the emblems of his jurisdiction, outside his own province. The latter position was impregnable, and the claim of Armagh was silently abandoned after the fifteenth century; but so long as the Primates continued to make it, so long was there trouble. When they were summoned to Parliament in Dublin, again and again they refused to come unless they were allowed to come in full dignity, with their cross borne before them. Half-a-dozen times,[1] while Talbot ruled the see of Dublin, the Archbishops of Armagh complained that they were prevented from attending Parliament, without violating their oath to defend the rights of the Primacy, by the violence and opposition of the Archbishop of Dublin in refusing them permission to raise their cross.

There is no reason to suppose that there was anything personal in these squabbles. Talbot had, indeed, just missed the see of Armagh, when his brother first came to Ireland, as I have already mentioned; but there can be little doubt that the see of Dublin, which was the seat of government, was more congenial to his tastes and gave a larger scope to the exercise of his powers as a statesman. And, in fact, in 1443, on the death of Archbishop Prene, Talbot was elected Primate by the dean and chapter of Armagh, but he refused to be translated.

There is no evidence, and no probability, that Archbishop Talbot took much interest in the theological or ecclesiastical problems of the day. At the beginning of the fifteenth century, the most conspicuous features in the religious situation in Europe were the Great Schism in the Western Church, and the scandal caused by the rivalries of contending popes. The General Councils of Pisa and Constance were engaged for several years in the attempt to put an end to this state of things, and the situation was further complicated by disputes as to the relative authority of a General Council on the one hand, and a lawfully elected Pope on the other. However, at the end of 1417, just about the time that Talbot became Archbishop of Dublin, a strong Pope, Martin V, was elected, who did much to consolidate the Papal power. Another Council was held at Basle in 1431 and the following years, a weaker man, Eugenius IV, occupying the Papal see. To this all the Great Powers sent delegates, as it was necessary to do for political reasons, quite apart from the theological questions which were in debate. Archbishop Talbot did not go to Basle—he was too busy in Ireland—but he was formally represented by two proctors or agents whom he appointed under his hand and seal at his Palace at Tallaght in July, 1433.[2] One of these, John Ardagh, LL.B., who had studied

[1] In 1429, 1435-9, 1442, 1443.

[2] Memoranda Rolls (Dublin Record Office).

theology at Oxford, was in the course of the next year[1] appointed by the Pope Prebendary of Newcastle in St. Patrick's Cathedral; the other was Robert Sutton, who was probably a kinsman of a former Prebendary of Mulhuddart and Howth, if he was not the same man.

The policy of Archbishop Talbot in the appointments made to canonries and dignities in Dublin during his time, was plainly that of promoting lawyers, and especially men who had received a University education in England. He would naturally have been a supporter of the old statute by which Irishmen were debarred from holding Cathedral benefices. Nicholas Hill, for instance, who, when he was Archdeacon of Dublin, had been charged with the duty of requesting the pall from the Pope for Talbot, on the accession of the latter to the metropolitan see of Dublin,[2] was a bachelor of laws, and he was elected Dean of St. Patrick's in Talbot's time (1439). The Archdeacon who succeeded Hill was Robert Dyche, an eminent lawyer, who afterwards became Master of the Rolls and Lord Treasurer of Ireland. The Vicar-General of the diocese, Nicholas Moynagh, became Precentor about 1430.[3] A predecessor of his in the Precentorship, John Skyllington, who had been given leave of absence in 1401 for four years to study at Oxford,[4] was afterwards made Prebendary of Yagoe by Archbishop Talbot. In like manner, the two bishops of Ossory appointed while Talbot was Archbishop of Dublin were lawyers, viz.: Denis O'Dea, LL.B. (1421–1428), who is said to have been "a man of great knowledge in the municipal laws of his country," and Thomas Barry (1428–1459), who was Treasurer of Ireland. There is little doubt that Talbot had some share in their preferment.

Of the man himself, as distinct from his policy as statesman, chancellor, and prelate, we know very little; few personal details have come down to us. But that he was a strong ruler is certain; and when his long reign of thirty-one years[5] in the see of Dublin was ended by his death on 15 August, 1449, it was fitting that he should be buried "prope cathedram archiepiscopalem"[6] in his Cathedral of St. Patrick, and that his benefaction to the Church should be commemorated on the monument placed over his grave.

His sepulchral brass was lost or disappeared nearly a century ago; but

[1] *Cal. of Papal Registers*, 25 Sept., 1434.

[2] *Cal. of Papal Registers*, 12 Aug., 1418.

[3] The patronage of the dignities of Precentor, Chancellor, and Treasurer in St. Patrick's Cathedral was confirmed to the Archbishop by royal grant in 1425 (Archbishop Alan's *Register*, fol. 129 b).

[4] Cal. of Pat. Rolls, 14 July, 1401.

[5] Only three Archbishops of Dublin have been in office for a longer time: viz. Adam Loftus (1567–1605), who ruled the see for thirty-seven years; and Alexander de Bicknor (1317–1349) and Richard Whately (1831–1863), both of whom sat for thirty-two years.

[6] Brit. Mus. Add mss. 33991, fol. 46.

happily the original stone matrix, and two sketches of the monument executed in the seventeenth century, have survived. By the aid of these, and by the liberality of Viscount Iveagh, it was found possible in the present year (1919) to restore this beautiful monument very exactly, and it has now been replaced over the archbishop's grave in the choir of St. Patrick's Cathedral.[1]

The inscription, in rude hexameters, has been restored. It reads as follows:—

"Talbot Richardus latet hic sub marmore pressus
Archi fuit praesul huius sedis reverendae
Parvos canonicos qui fundauitque choristas
Anno milleno C quater quater X quoque nono
Quindeno Augusti mensis mundo ualedixit
Omnipotens Dominus cui propicietur in aeuum."

On one side of the monument the choristers are represented, and on the other side are four minor canons. The Foundation Charter contemplated six minor canons, but there were never more than four, as there are now. They are represented as offering a prayer for the Archbishop, which is inscribed on a scroll.

The Archbishop carries, not the metropolitan cross, but a simple pastoral staff.[2] It is a curious coincidence that, at the time of his death, the cross was found to have been pledged[3] for five marks to a tailor in Nicholas Street, Dublin. It was released by the prior and convent of Christ Church, by direction of the new archbishop, Michael Tregury, the dean and chapter of St. Patrick's refusing any responsibility for its safe keeping; and whenever we hear of the cross again, it is always in the custody of the Christ Church authorities. It might be conjectured that some jealousy as to this, or some old quarrel about the erection of the metropolitan cross in St. Patrick's, prevented it from being represented on the Talbot brass, were it not that it is found on the monument to Archbishop Tregury in St. Stephen's Chapel in the Cathedral. It is, at any rate, noteworthy that it had been pawned in Talbot's time, either by himself or by the convent of Christ Church, showing that the Chancellor-Archbishop did not use it very often.

Another interesting peculiarity of the Talbot brass is that the Archbishop is not wearing the pall, although we know that he received it from the Pope. In fact, he is not portrayed in his full pontifical habit, as Archbishop Tregury is, the reason not being apparent.

[1] The monument, and the circumstances of its recovery, have been fully described by Dr. H. J. Lawlor in his valuable memoir on the *Monuments of the Pre-Reformation Archbishops of Dublin* (Proc. Roy. Soc. Antiquaries of Ireland, December, 1917).

[2] See Lawlor, *l. c.*, for a discussion of this feature.

[3] *Liber Albus* of Christ Church, no. 5.

VI.

NOTES ON ST. BERNARD'S LIFE OF ST. MALACHY, AND HIS TWO SERMONS ON THE PASSING OF ST. MALACHY.

By REV. H. J. LAWLOR, D.D., Litt.D.

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St. Bernard's Life of St. Malachy of Armagh, if its statements are reliable, is the most important existing document for the history of the Irish Church in the first half of the twelfth century. And probably no one who has read it, and who has made himself acquainted with the character of its author, will be disposed to deny its *bona fides*. Some allowance must of course be made for the temperament of St. Bernard. His descriptions of the barbarism of the Irish people, and of the corruption of the Irish Church, may be overdrawn. But he can scarcely be accused of being inspired by a special animus against the Irish. His denunciations of continental ecclesiastics and Roman citizens are not less severe than those which are directed against the clergy and people of Ireland.[1] Possible exaggeration in a few rhetorical passages does not seriously detract from the historical value of his work as a whole. Our estimate of it must be determined in the first place by an investigation of the sources from which he derived his detailed statements of fact, and the manner in which he made use of them; and secondly by a comparison of the statements made in the Life with those of independent documents. That investigation and comparison I propose to make in the present paper. I shall also discuss the cognate question of the dates of the Life, and of St. Bernard's two sermons on St. Malachy, which in some particulars supplement the information given by the Life.

1. St. Bernard's Authorities.

St. Bernard was an eye-witness of many of the events of the life of St. Malachy which he records. It is well known that Malachy was on three occasions the guest of St. Bernard. Some years after his resignation of the see of Armagh he went to Rome to demand from Pope Innocent II palls for the Archbishops of Armagh and Cashel. Both on his journey to Italy and when he was returning to Ireland he stayed at Clairvaux. Eight or nine

[1] *Vita*, Praef. 1; *De Consid.* iv, 2, 4, 6.

years later he again came to Clairvaux with the intention of making a similar request of Pope Eugenius III. A few days after his arrival he fell sick, and a fortnight afterwards he died in the monastery. The incidents of these three visits came under St. Bernard's own observation. The accuracy of what he tells about them cannot be questioned. The purpose of the first visit was no doubt to secure the support of the most powerful ecclesiastic in Europe for the request which Malachy was about to make of Pope Innocent, who owed to St. Bernard his establishment on the papal throne. But, however that may be, it was inevitable that in familiar conversation between the two saints, Bernard should be informed by Malachy of the object of his mission, and of the affairs of the Irish Church. On these occasions we may also assume that Malachy recounted to Bernard the incidents of his journeys and of his sojourn at Rome. If these assumptions are correct, a considerable part of the Life—about a sixth of the whole treatise[1]—is based on St. Bernard's direct knowledge and St. Malachy's reports. And it must not be forgotten that Malachy wrote several letters to his friend in the interval between his second and third visits to Clairvaux. These letters, which are no longer extant, doubtless added some particulars to the information conveyed by oral communication.

On the occasion of the second visit Malachy left four of his companions in travel at Clairvaux, in order that they might be instructed in the Cistercian rule.[2] From them Bernard may have acquired further knowledge of Malachy's career. If, as is probable, they belonged to Malachy's community at Bangor, much of what St. Bernard tells us about that monastery—its re-founding —Malachy's elevation to the episcopate, and his work and miracles in the district[3]—may have come from them. In particular, Christian, the future abbot of Mellifont, who was apparently one of them,[4] may have told Bernard of the miraculous cure of his brother Malchus, and of another miracle of healing in which Malchus took some part.[5] Other, who came from Ireland later on, doubtless contributed to his stores of knowledge.[6]

But Bernard leaves us in no doubt as to the principal source of his information. The Preface to the Life ends with the following words :—

"Finally, you enjoin me to undertake this task, Abbot Congan, my reverend brother and sweet friend, and with you also (as you write from Ireland) all that Church of the saints to which you belong. I obey with a will, the more so because you ask not panegyric but narrative . . . At any rate the truth of my narrative is assured, since it has been communicated by you

[1] §§ 19–31.
[2] *Vita*, § 39.
[3] §§ 12–18, 31, 42, 53, 61–63, 68.
[4] Bernard, *Ep.* 357, § 3.
[5] *Vita*, §§ 14, 52.
[6] *Ib.*, § 39. See also *Serm.* i *in trans. Mal.*, § 1.

(*nobis*): and beyond doubt you assert nothing but things of which you have most certain information."

This Congan was evidently personally known to St. Bernard. He is mentioned in the Life (§ 64) as "our Congan," abbot of the Cistercian monastery of Inislawnaght (*Monasterium Suriense*). We may conclude that he was one of the brothers already mentioned, who received instruction at Clairvaux. To him and his friends we are indebted for the greater part of St. Bernard's narrative. Congan had first-hand knowledge of at least one story embodied in the Life—the handing over to him by Malachy of the "new Zacchaeus," who became the first lay *conversus* of the monastery of the Suir.[1] But we cannot be sure that he was an equally reliable witness of other events which he communicated to St. Bernard. We may suspect, for example, that a good many of the stories of St. Malachy's miracles, which fill a large section of the Life, came from him. They are said to have been worked in many different regions of Ireland, from Coleraine to Cork, and no man can have been in a position to vouch for the truth of them all. But for the historian these narratives of miracles, whether true or false, are the least important part of St. Bernard's treatise. Setting them aside, it may fairly be said that St. Bernard drew his facts from good sources. We have *prima facie* reason to regard his Life of St. Malachy as an historical document of the first rank.

But we must carry our investigation somewhat further. If a large part of St. Bernard's material consisted of stories communicated by word of mouth, he seems also to have had before him written statements. He informs us that he could, if he wished, have given us the uncouth names—many of which he omits—of the places at which Malachy's miracles were wrought.[2] It is highly improbable that these names were stored in his memory. Hence I conclude that the stories had in many cases been committed to writing by his informants. And among his written documents, I cannot doubt, was one that took a wider scope than most of the others, and gave information about the history of the Church of Armagh. It is instructive to observe his manner of dealing with it. On it, if I mistake not, is based the following passage:—

"From reverence and honour for [Patrick], as the apostle of that nation, who first converted the whole country to the faith, that see where he presided in life and rests in death has been held in so great veneration by all from the beginning, that not merely bishops and priests, and those who were of the clergy, but also all kings and princes are subject to the metropolitan in all

[1] § 64. [2] § 46.

obedience, and he himself alone presides over all. But a very evil custom had developed, by the devilish ambition of certain powerful persons, that the holy see [*sc.* of Armagh] should be held by hereditary succession. For they suffered none to be bishops, but those who were of their own tribe and family. And for no short time had the execrable succession lasted, for fifteen generations (as I may call them) had already passed in this wickedness. And to such a point had an evil and adulterous generation established for itself this distorted right, rather this unrighteousness worthy of punishment by any sort of death, that although at times clerics failed of that blood, yet bishops never. In a word, there had been already eight before Cellach, married men and without orders, albeit men of letters."[1]

The first thing to be noticed about this passage is that St. Bernard uses in it the word *metropolitan*. This term cannot have been in the document which lay before him; for metropolitans, name and thing, were unknown in Ireland at the period to which he refers. But whatever the original word may have been which he represents by *metropolitan*, it is obvious that the persons to whom he gives that title were the abbots of Armagh, commonly known as comarbs of Patrick. Cellach was, in fact, elected comarb in August, 1105. Of the eight preceding comarbs, then, St. Bernard makes the definite statement that they were without orders. Let us see whether this statement is supported by independent evidence.

We turn to the *Annals of Ulster*, one of the most accurate of the native Irish Chronicles, and of special authority for the Province of Ulster. They give us the following particulars of ten successive comarbs of Patrick.

1. Cathasach, "eminent bishop of the Goidhil," died 957.

2. Muiredach made a circuit of Connaught in 960, which implies that he was then comarb. He was put out of the abbacy in 965. Died 966.

[The *Chronicon Scotorum* (964) says he was "seven years in the government," which harmonizes with the supposition that he succeeded Cathasach.]

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[1] *Vita*, § 19: "Cuius reverentia et honore, tamquam apostoli illius gentis, qui totam patriam conuertisset ad fidem, sedes illa, in qua et uiuens praefuit et mortuus requiescit, in tanta ab initio cunctis ueneratione habetur, ut non modo episcopi et sacerdotes, et qui de clero sunt, set etiam regum ac principum uniuersitas subjecta sit metropolitano in omni obedientia, et unus ipse omnibus praesit. Verum mos pessimus inoleuerat quorundam diabolica ambitione potentum, sedem sanctam obtentum iri in haereditaria successione. Nec enim patiebantur episcopari, nisi qui essent de tribu et familia sua. Nec parum processerat exsecranda successio, decursis iam in hac malitia quasi generationibus quindecim. Et eo usque firmauerat sibi ius prauum, immo omni morte puniendam iniuriam, generatio mala et adultera, ut etsi interdum defecissent clerici de sanguine illo, sed episcopi nunquam. Denique iam octo extiterant ante Celsum uiri uxorati et absque ordinibus, litterati tamen."

3. Dubhdaleithi II succeeded Muiredach as abbot in 965. In 989 he became also comarb of Columcille. Died 2 June, 998.

4. Muirecan claimed the abbacy in 993, probably on the ground that Dubhdaleithi's appointment as comarb of Columcille had vacated it. He seems to have been in undisputed possession from 998 to 1001. Died 1005.

5. Mael Muire claimed the abbacy in 1001. He had undisputed possession from 1005 to his death on 3 June, 1020.

6. Amhalgaid. Elected abbot 1020. Died 1049.

7. Dubhdaleithi III. Became abbot in 1049. Died 1 September, 1064. His possession was disputed in 1060 by Cumuscach, who died in 1074. The *Annals of Ulster* imply that Dubhdaleithi retained the office till his death.

8. Mael Isu succeeded as abbot in 1064. Died 18 December, 1091.

9. Domnall succeeded in 1091. Died 1105; buried at Armagh 12 August.

10. Cellach succeeded in 1105. He took holy orders 23 September. He "received the degree of archbishop (ua[illegible] easpuig)," on the occasion of a circuit of Munster, in 1106.

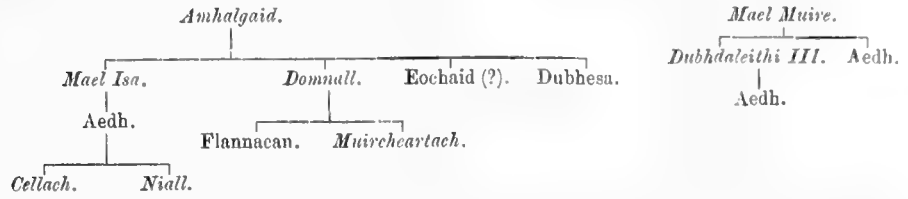
Among the persons mentioned in these notes there is one whose position is uncertain. In three early lists of comarbs of Patrick printed by Todd Cumuscah appears as the third predecessor of Cellach.[1] It is unnecessary to argue the question whether he is rightly included in the lists. For my purpose it is sufficient to observe that the *Annals of Ulster* do not recognize his claim: they nowhere call him comarb of Patrick, and clearly regard him as an unsuccessful candidate for the office.

Now the first of these ten acknowledged comarbs is said to have been a bishop, and the consecration of the tenth in the year following his election is duly recorded; but of the intervening eight there is no hint that any one was of the episcopal order. Moreover it is plainly intimated that the tenth was without orders at the time of his election: Cellach was elected abbot on or soon after 12 August, 1105; he was not ordained till 23 September. And the very fact that his ordination is recorded indicates that it was unusual for comarbs of Patrick to be ordained, even after their entry upon the office. From the *Annals of Ulster* we may infer with confidence that the eight predecessors of Cellach were not bishops; and with hardly less assurance that they were "without orders." This coincidence between the Annals and St. Bernard cannot be due to accident.

But St. Bernard is not content with his negative statement about Malachy's eight predecessors. He further informs us that they were married

[1] J. H. Todd, *St. Patrick, Apostle of Ireland*, 1864, pp. 178, 179, 182.

men, and belonged to a single tribe and family. Once again he is in agreement with the *Annals of Ulster*. From them we can construct the following genealogical table, in which the names of comarbs of Patrick are printed in italics.



This table demonstrates that at least five of the eight abbots referred to by St. Bernard were married. It shows also that six abbots (including Cellach and the two rivals of Malachy, Muircheartach and Niall) belonged to the same family; and that two others were related as father and son. We have no means of ascertaining the ancestors of Amhalgaid and Mael Muire; but there is nothing to show that they were not closely related to each other. Moreover Flannacan and Aedh son of Dubhdaleithi are given the title "intended abbot" (ᚐᚋᚇᚓ ᚐᚋᚋᚐᚇ)—a fact which indicates that family connexion had some place in the qualifications of an abbot. Thus St. Bernard is again confirmed by the *Annals of Ulster*. There can be no doubt that the comarbate of Patrick was for a time held by "hereditary right."

St. Bernard adds that this abuse continued for fifteen quasi-generations. Elsewhere he says that it had lasted for "well-nigh two hundred years."[1] These statements can neither be proved nor disproved. It is true that we know the names of the fathers of abbots earlier than Muiredach, and within two centuries of the accession of Cellach, and that none of them bears the name of a previous abbot. But this is in harmony with what St. Bernard says; for his assertion that the eight predecessors of Cellach were married implies that the previous "metropolitans" of the "evil seed" were not. It is clear, however, that the "quasi-generations" of St. Bernard were much shorter than the generations of human life. It has therefore been conjectured, with probability, that he means by that phrase the term of office of a "metropolitan."[2] If so, according to St. Bernard the abuse began with Maelcobha, the fourteenth predecessor of Cellach, who died in 888, 217 years, or a little *more* than two centuries, before the election of Cellach. Thus there is a discrepancy, though not a very serious one, between the two statements as to the duration of the hereditary succession. Almost the same result is arrived at if instead of the

[1] § 20.

[2] This suggestion harmonizes with St. Bernard's metaphor, according to which the consecration of a bishop "raised up seed" to his predecessor. *Vita*, § 34.

Annals of Ulster we appeal to the lists of comarbs of Patrick.[1] The sum of the periods of office of the comarbs as given in them from the election of Maelcobha to that of Cellach is 217 years. But be it noted that to get this total we must first emend Todd's lists from the manuscripts, and then form a list for ourselves by comparing the lists with each other. No one of Todd's three lists would give us the correct total. If we suppose, as is very likely, that St. Bernard was working on such a list of comarbs, his discrepancy is easily accounted for: a few omissions of *x* or *i*, or confusions of *u* with *ii* or *c* with *e*, in the figures would reduce the total to a number less than 200. We may defend St. Bernard by assuming that the figures in his document were not absolutely correct, or that he made excusable errors in reading them.

I may mention here some other passages of the Life of St. Malachy, in which, as I think, it has been too lightly assumed that the writer is guilty of exaggeration. Perhaps no sections of it have given rise to so much discussion as those in which the following statements occur[2]:—

"Malachy instituted anew the most saving usage of Confession, the Sacrament of Confirmation, the marriage contract—of all of which they were either ignorant or negligent."

"There was no giving of tithes or first fruits, no entry into lawful marriages, no making of confessions."

"[By the exertions of Malachy] everywhere the ecclesiastical customs are received, the contrary are rejected, churches are re-built . . . the solemnities of the Sacraments are duly celebrated, confessions are made . . . the celebration of marriage graces those who live together."[3]

The first of these sentences refers to the diocese of Armagh, the others to the neighbouring diocese of Down. Is it possible that there can have been such laxity as they proclaim in the Irish Church of the twelfth century, especially in the matter of sexual morality? I am not concerned here to answer that question. What I desire to show is that St. Bernard may well have based his statements on reports from Ireland, to which he added nothing. In a medieval antiphonary of the Church of Armagh, preserved in Trinity

[1] Todd, l.c.

[2] Cp. Lanigan, *Eccl. Hist. of Ireland*, iv, 70 ff., 88, &c.

[3] § 7. "Usum saluberrimum confessionis, sacramentum confirmationis, contractum coniugiorum, quae omnia aut ignorabant aut negligebant."

§ 16. "Non decimas dare, non primitias, non legitima inire coniugia, non facere confessiones."

§ 17. "Recipiuntur ubique ecclesiasticae consuetudines, contrariae reiiciuntur, reaedificantur basilicae, ordinatur clerus in illis, sacramentorum rite sollemnia celebrantur, confessiones fiunt, ad ecclesiam conuemunt plebes, concubinatus honestat celebritas nuptiarum."

College (MS. B. 1. 1) there is a note in the Irish language of much historical importance, which I believe has never been used to illustrate the passages which I have quoted. It is written on a blank page opposite the opening leaf of the Calendar, and has evidently been copied from an early document the latter part of which has not been transcribed—the scribe having stopped at the end of a line, and in the middle of a sentence.[1] It is dated 1 Jan. 1170, and eulogizes Donnchad O'Cearbhill, King of Oriel, who died in 1168. He is described as a reformer of the Church, and the founder of Mellifont Abbey and other ecclesiastical institutions, and was evidently a supporter of Malachy. His kingdom included a large part of the diocese of Armagh as it existed in the time of Cellach and Malachy.[2] Among the reforms which are placed to his credit are these: "In his time tithes were received, and marriage was assented to, and churches were founded." This, be it remembered, is the statement of a native Irish writer, and, so far as it goes, it corroborates St. Bernard. It implies no less than what he says. If he gives an exaggerated account of the state of the dioceses of Armagh and Down, and of Malachy's labours in them, we need not doubt that he faithfully reproduced the reports of his Irish informants. The exaggeration is to be attributed not to him, but to the authority on which he relied.

But let us return to St. Bernard's remarks on the system of hereditary succession. The more clearly we recognize that behind them lies a good document used with care, the more we are amazed to find among them statements which are absolutely unhistorical. I have already remarked that St. Bernard substituted "metropolitan" for some other word in the text on which he worked—probably "comarb of Patrick" or a Latin equivalent. Now a metropolitan is a bishop, and accordingly St. Bernard gives us to understand that the eight lay predecessors of Cellach were pseudo-bishops. He even goes so far as to say that they allowed none to be bishops who were not of their family. The manifest implication is that for a century and a half there were no bishops at Armagh. The episcopal prerogatives were usurped by laymen of a privileged sept. Now this is absolutely contrary to fact. The Annals give no hint that there was any irregularity in the position of the lay abbots. But that is not all. They actually name bishops of Armagh contemporary with them. The *Annals of Ulster* mention the following:—

Cathasach. Died 966.

Mael Muire. Died 994.

[1] For this note see G. Petrie, *Ecclesiastical Architecture of Ireland*, p. 389, where it is not made clear that only part of it is copied. There is a revised translation in Whitley Stokes' *Martyrology of Gorman*, p. xx.

[2] See *Louth Archaeological Journal*, iv, 135 ff

Maeltuile. Died 1032.
Aedh O Furreidh "assumed the bishopric" in 1032. Died 1056.
Mael Patraic. Died 1096.
Caincomrac O Baighill "assumed the bishopric" 29 May, 1099. Died 1106.

The double entry under 1032, recording the obit of Maeltuile and the accession of Aedh, seems to indicate that the bishops followed one another in a regular series. There is no suggestion that they belonged to the comarbial family.

How can we explain this union of truth and falsehood in a writer who made use of trustworthy authorities? The answer to the question appears to me obvious. The bishops were not mentioned in his document. But plainly the eight "metropolitans" who preceded Cellach were rulers of the Church. A Continental ecclesiastic who knew nothing of Irish hierarchical arrangements, would at once infer that they were either bishops or persons who usurped episcopal functions. St. Bernard knew that they were laymen: therefore the latter alternative was alone open to him. Beside these pretenders there was no room for true bishops. St. Bernard had excellent information; but he misinterpreted it because he was ignorant of Irish affairs, and could not conceive a hierarchy in which the abbots were supreme, and the bishops comparatively unimportant persons.

We need not censure him severely. The manufacture of bishops out of abbots and even out of simple monks is an occupation in which Irish historians and antiquaries have indulged since St. Bernard's day. We need not carry our researches far to find an example. Heedless of the warning of St. Bernard, Ware includes the eight lay predecessors of Cellach in his inflated list of the Archbishops of Armagh; and informs us that the only bishops which the Annals know in that period were their suffragans.

We have perhaps now proceeded far enough to conclude that St. Bernard had good sources of information, and that his knowledge of Ireland was not sufficient to enable him always to interpret them correctly. Further evidence of the truth of that hypothesis will meet us when we come to investigate the chronology of St. Malachy's life. By way of preliminary to this further study it is necessary to concern ourselves with his travels outside Ireland.

2. St. Malachy's Journeys.

I have mentioned the fact that St. Malachy made a journey by Clairvaux to Rome for the purpose of asking Pope Innocent II to bestow palls on the Irish archbishops. This I call his first journey, the second being his return journey

from Rome to Ireland. Some years later he made his third journey, which ended at Clairvaux about three weeks before his death.

On the second journey Malachy embarked at Lapasperi, which has been identified with Cairngarroch in the parish of Stoneykirk, Wigtownshire,[1] sailing thence to Bangor.[2] On the third journey he apparently sailed from Bangor, or some port near it, and probably landed at or near Lapasperi, as the first stop in Scotland was at Soulseat (Viride Stagnum), about eight miles from Cairngarroch, and three miles S.-E. of Stranraer.[3] Thence, no doubt, he went by the most direct route through Glenluce and Newtown Stewart to Carlisle. No particulars are given of the first journey through Scotland; but, in the absence of information, the route may be supposed to have coincided with that of the third journey as far as Carlisle. On the second journey the saint appears to have made a detour for the purpose of visiting King David I; for, immediately after passing a night as his guest, we find him passing through Crugeldum (now Cruggleton) on the west coast of Wigtown Bay, near Whithorn. From that place he journeyed through the village of St. Michael's Church in the parish of Mochrum[4] to Cairngarroch.

On his first journey through England he visited York,[5] presumably following pretty closely the line of Erming Street, through London to the coast. It may indeed be objected that Erming Street did not then exist. Malachy may rather, like Wolsey in the time of Henry VIII,[6] have gone by the great North Road. But that road coincides with Erming Street up to a point a few miles south of Grantham. The mileage of the two routes to York is almost identical. For my purpose, which is to discover the length of the journey in miles, it matters not which of them he followed: for convenience, the line of Erming Street may be assumed. It is reasonable to suppose that on the return journey he kept to the same route; but for this we have no evidence.

On the third journey Malachy "turned aside" at the very border of England to visit the monastery of Gisburn in Yorkshire.[7] Thus we are assured that on that occasion he did not go by York or Erming Street, but by the alternative route from Carlisle to London, approximately along the line of Watling Street; for it passed through Ribchester, from which Gisburn is only fourteen miles distant.[8] For determining his route we have

[1] O'Hanlon, *St. Malachy*, p. 81. Sir Andrew Agnew (*Hereditary Sheriffs of Galloway*, 1893, vol. i, p. 58 f.) preferred another Cairngarroch in the parish of Leswalt.

[2] *Vita*, §§ 40, 42. [3] *Ib.*, § 68.

[4] Sir Herbert Maxwell kindly informs me that the Church of Mochrum was anciently dedicated to St. Michael. The village surrounding it is now known as Kirk of Mochrum.

[5] *Vita*, § 35.

[6] See Cavendish's Life of Wolsey, Kelmsworth Press, 1893, pp. 193–224.

[7] *Vita*, § 69.

[8] On his way from Overtown to Ribchester Malachy must have passed through Settle and Chetburn. Gisburn is about three miles from the direct road between those places.

considerable help from the Itinerary of Simeon Simeonis, edited by J. Nasmith in 1778. In 1323 Simeon, an Irish pilgrim, went through Wales, and, after keeping Easter at Chester, proceeded by Stafford, Lichfield, Coventry, Dunstable, St. Alban's, London, Canterbury, and Dover to Wissant. By diverging from Watling Street to pass through Coventry he saved a few miles. I take for granted that Malachy went by the same road from the point where the road from Ribchester joined it. The more northern part of his journey is less easy to follow, for between Carlisle and Manchester not many traces of the Roman roads remain.

The route through France, Switzerland, and Italy can be ascertained with comparative ease, though the only facts recorded by St. Bernard are that in all his journeys Malachy stayed at Clairvaux, and that on the first he worked a miracle at Ivrea in North Italy.[1] Fortunately we have in our hands the singularly full itinerary of Archbishop Sigeric from Rome to Canterbury in 990.[2] He passed through Pontremoli, Piacenza, Vercelli, and Ivrea, across the Great St. Bernard, to Lausanne, and thence by Bar-sur-Aube (not far from the spot which afterwards became famous as the site of St. Bernard's monastery at Clairvaux), Châlons-sur-Marne, and Rheims, to the sea near Wissant. Pope Eugenius followed the same route on his northward journey in 1147 as far as Vercelli, at which place he turned off from it to go to Lyons. In the following year he again followed Sigeric's route from Rheims to Pavia, spending a few days at Clairvaux on his way.[3] And over the same roads St. Bernard went from North Italy to Clairvaux in 1135.[4] There can be very little doubt that Malachy went from Canterbury to Rome and back, and again from Canterbury to Clairvaux, by this route.

The following, then, seems to have been the itinerary of Malachy on these three journeys. For convenience I have reversed the order of the stopping-places on the second journey. The figure opposite each place-name gives the number of miles from the next preceding place which has a figure opposite it.

[1] *Ibid.*, §§37, 39.

[2] See Stubbs, *Memorials of St. Dunstan*, pp. 391–395. Dr. R. L. Poole kindly directed my attention to the two itineraries mentioned above.

[3] Jaffé, *Regesta* (ed. 1851), pp. 625, 633 f.

[4] *Vita Prima S. Bernardi*, II, 28. He also travelled from Chalons to Clairvaux along the same road. *Ib.*, VI. 42–44.

I have measured the distances on Bartholomew's *Survey Atlas of Scotland* and *Royal Atlas of England*, the maps of France issued by the *Service géographique de l'armée*, and the maps of Italy in Macmillan's Guide to Italy. In a few cases I have been able to check my measurements by statements as to road distances in Baedeker's and Murray's Guide-books, and Codrington's *Roman Roads in England*.

First, second, and third journeys.

Bangor.

Cairngarroch, 0.
Soulseat, 8.
Glenluce, 7.

Second journey.	First and third journeys.
Kirk of Mochrum, 13.	
Cruggleton, 12.	
Newtown Stewart, 16.	Newtown Stewart, 15.

First, second, and third journeys.

Dumfries, 48.
Annan, 15.
Longtown, 12.
Carlisle, 8.
Brougham, 20.

First and second journeys.	Third journey.
Kirkby Thore, 6½.	Low Borrow Bridge, 20.
Brough, 12½.	Overtown, 16½.
Bowes, 13.	Ribchester, *c.* 37.
Catterick, 20.	Manchester, *c.* 26.
Aldborough, 24.	Middlewich, 25.
York, 16½.	Nantwich, 10.
Tadcaster.	Stafford, 28.
Castleford.	Lichfield, 16.
Doncaster.	Wall, 2.
Lincoln, 75½.	Wilnecot Station, 7.
Ancaster, 16½.	Over Whitacre, 8.
Castor, 35½.	Coventry, 10.
Godmanchester, 19½.	Walden Station, 22.
Royston, 20.	Towcester, 8.
Braughing, 11.	Fenny Stratford, 15.
	Dunstable, 12.
	St. Albans, 11½.
	Brockley, 8.
London, 29.	London, 12.

First, second, and third journeys.

Canterbury.
Dover, 67½.

Coast near Wissant, 0.
Sombre, 1.
Guisne, 8.
Thérouanne, 27.
Bruay.[1]
Arras, 33½.
Laon, 71.
Rheims, 31.
Donnemant,
Châlons, 27.
Brienne, *c.* 46.
Bar-sur-Aube, 14.
Clairvaux, 8.[2]

First and second journeys.

Blessonville, 13.
Humes, 19.
Grenant, 17½.
Savoyeux, 17½.
Cussey, 18.
Besançon, 10.
Nodz.
Pontarlier, 32.
Orbe, 22.
Lausanne, 18.
Vevey, 12.
St. Maurice.
Martigny, *c.* 32.
Orsières.
St. Remy.
Aosta, 49.
Ivrea, 39.
Santhia, 17.
Vercelli, 12.
Tromello, 24.
Pavia, 17.
Piacenza, 35.
Fiorenzuola, 14.
Borgo San Donnino, 9.
Berceto, 41.
Pontremoli, 12.
Aulla, 14.
Sarzana, 9.
Camajore, 22.
Lucca, 14.
Fuceccio, 21.
Siena, 42.
River Arbia, 14½.
Torrenieri, 7½.
S. Quirico, 3.
Acqua-pendente, 32.
Bolsena, 10.
Montefiascone, 7½.
Viterbo, 10.
Sutri, 18.
Baccano, 9½.
Rome, 18.

[1], [2] For notes see p. 242.

If this Itinerary is fairly correct, we have the following approximate figures for the distances on land travelled by St. Malachy and his companions in travel:—

	Miles.
From Cairngarroch to Rome and back, . . .	3023
From Cairngarroch to York, ...	225
From York to Clairvaux, ...	541
From Cairngarroch to Dover (third journey), . .	495
From Canterbury to Rome, ...	1013
From the French coast to Clairvaux, . . .	266
From Clairvaux to Lausanne, ...	167
From Clairvaux to Martigny, ...	211
From Clairvaux to Rome, ...	732

We must now attempt to estimate the time occupied by St. Malachy's journeys. In the Middle Ages a courier could go from Rome to England in a month. But that meant that he covered thirty-three miles of road every day. More ordinary travellers spent seven weeks on the way, going twenty miles a day.[3] Malachy must have travelled much more slowly. He was accompanied by a considerable number of attendants. On his second journey he left four of them at Clairvaux, others at other Cistercian houses, and apparently some at Cairngarroch, where he constructed a monastery; yet he was not without companions when he reached Bangor.[4] We cannot suppose therefore, that the band of travellers was originally less than twelve in number. But they had only three or four horses.[5] Most of them, therefore, must always have been on foot, and the whole of the long journeys, to and from Rome, must have been accomplished at a walking-pace. They would certainly rest on Sundays. And some of them were men who practised austerities not conducive to physical vigour. It is hardly possible that they could have advanced at a more rapid rate than 100 miles a week, or a little over sixteen miles a day. On the subsequent journey to Clairvaux, at any rate from Cairngarroch to the Strait of Dover, progress seems to have been even slower than before.[6]

This hypothesis gives the following results:—The journey from Bangor

[1] Two miles off the straight road from Thérouanne to Arras.

[2] In *Vita Prima*, iv, 44, it is said that Clairvaux is three miles from Bar-sur-Aube. Is there an error in the text?

[3] See *Epistulae Cantuarienses* (*Chron. of Richard I*, vol. ii), ed. Stubbs (R. S.), p. cxxi ff.

[4] *Vita*, §§ 35, 39, 40. [5] *Ib.*, § 36.

[6] See below, p. 249 f.

to Rome and back, allowing a day each for four sea voyages, and a week for delays at York and Cairngarroch, a month for two visits to Clairvaux,[1] and a month at Rome,[2] occupied a little over forty weeks. From Bangor to York two weeks and three days. From York to Clairvaux, five weeks and four days. From Clairvaux to Martigny, two weeks and one day. From Clairvaux to Rome, seven weeks and two days. From Bangor to Dover (third journey), counting delays at Soulseat and Gisburn, and the visit to King David,[3] seven weeks; or longer, since there were hindrances to the passage through England.[4] From the French coast to Clairvaux, two weeks and four days.

3. The Chronology of Malachy's Life.

St. Bernard's Life of St. Malachy supplies only one A.D. date. It is that of the death of Malachy, which is said to have taken place on 2nd November, 1148.[5] In this St. Bernard is in exact agreement with the Four Masters. But he adds that Malachy was then in his fifty-fourth year,[6] while the Masters affirm that he had passed his fifty-fourth year. This discrepancy is sufficient to prove that St. Bernard's Life and the Annals are independent authorities. But the discrepancy is there, and we must endeavour to ascertain which of our authorities is correct. From the Annals we should infer that Malachy was born before 2nd November, 1094; from St. Bernard that he was born after that day. Which of these inferences is the more probable?

Let us turn to another dated incident. In the *Vita*, § 16, he is said to have been consecrated bishop when he was just entering his thirtieth year. The Masters put his consecration under 1124. These statements are consistent if his twenty-ninth birthday was near the end of 1123 or in 1124, and if his fifty-fourth year was not completed in November, 1148. But if he was over fifty-four on 2nd November, 1148, he was over thirty on the corresponding day of 1124, and his twenty-ninth birthday was before November, 1123. Thus we are warranted in accepting St. Bernard's statement rather than that of the Masters concerning his age at the time of his death.

We can now determine approximately the date of the saint's birth. He

[1] The periods of his stay there can only be conjectured. But on his first journey he remained long enough to become so enamoured of Clairvaux and its abbot that he formed the plan of abandoning his work in Ireland and spending the rest of his life in the famous monastery. On his return from Rome some time must have been occupied in making arrangements for the introduction of the Cistercian Order into Ireland, and in placing some of his companions at suitable places for instruction.

[2] *Vita*, § 38. [3] *Ibid.*, §§ 68, 69. [4] *Serm.* i *in trans. Mal.*, § 1.

[5] § 75. [6] § 74.

completed his twenty-ninth year between January and October, 1124. Hence he was born between January and October, 1095.

The remaining dates may be taken in the order in which they are given in the *Vita*, with the exception of a few which present special difficulty, and which are therefore reserved for future consideration.

Vita, § 6. Malachy was ordained priest when he was about twenty-five years of age. Subsequently he was appointed by Cellach as his vicar. These statements are in some degree confirmed by the Annals. They tell us that in 1120 Cellach made a circuit of Munster. In July or August, 1121, he was in Dublin endeavouring to get possession of that see, then vacant by the death of Bishop Samuel O hAingli.[1] Thus in those two years he was for considerable periods absent from Armagh. In view of the contemplated circuit of Munster he may very well have appointed a vicar in 1120. In that year Malachy completed his twenty-fifth year.

Vita, § 20 f. Three years after the death of Cellach, Malachy was urged by "the bishops and princes of the land" to begin his contest with Maurice (Muircheartach) for the see of Armagh, and subsequently he commenced to perform archiepiscopal functions in the province, though not in the city. In harmony with this the Annals date the death of Cellach 1st April, 1129: and under 1132 the Four Masters have the entry "Mael Maedog O Morgair sat in the comarbate of Patrick at the request of the clergy of Ireland."

Vita, § 21 f. Two years later (five years or more after the death of Cellach, § 20) Maurice was "removed by sudden death," and Nigellus (Niall) "quickly took possession of the see." So, according to the Four Masters, Muircheartach died on 17th September, 1134, and in the same year Niall "was appointed to the comarbate of Patrick." St. Bernard implies that Malachy entered the city, and tells (§ 23) how his enemies were destroyed by a thunderstorm. Under 1134 the so-called Annals of Tigernach say, "Mael Maedog O Morgair ascended the chair of Patrick," and proceed to mention that twelve conspirators were killed by a flash of lightning. The Four Masters do not refer to the storm; but after mentioning the appointment of Niall they proceed, "a change of abbots took place at Armagh, i.e. Mael Maedog O Morgair in the place of Niall." The narrative of the next few sections of the *Vita* is not easy to follow; and the order of events is perhaps different from that given in the Annals. But there are no definite dates.

Vita, § 31. The contest with Niall lasted less than three years. When peace was restored Gelasius was consecrated by Malachy as his successor.

[1] See also Ussher's *Sylloge*, no. 40 (Works, iv, 532). Samuel O hAingli died 4th July, 1121 (Obits of Christ Church; *Annals of Ulster*).

Malachy then retired to his former diocese. In agreement with this the Four Masters record the appointment of the erenach of Derry (i.e. Gilla mac Liag, or Gelasius) as abbot of Armagh in 1137. But though our two authorities agree in the matter of chronology, they give different impressions of the course of events. The Masters clearly imply that Malachy gave up the contest with Niall in 1136, that Niall returned to power for a while, and that Gilla mac Liag was his successor rather than Malachy's. This is not the place to inquire whether the two accounts can be reconciled.

Vita, §§ 32–42. These sections contain an account of Malachy's pilgrimage to Rome and of the events which led up to it. His great and successful labours in the diocese of Down are first related, and the impression is left that they occupied a considerable period: one might suppose a year or two. Then Malachy conceived the plan of going to Rome to demand palls for the Irish Archbishops. This, if we are to accept St. Bernard's statements, was almost certainly not earlier than the latter part of 1138. And he is supported by independent evidence. For Malachy can scarcely have contemplated such a visit to the Pope until he was assured that the papal schism, which began in 1130 by the opposing elections of Innocent II and Anacletus II, had come to an end. Peace was restored by the influence of St. Bernard on 29 May, 1138;[1] but the news seems to have been slow in coming to these islands. It was announced, as Richard of Hexham tells us,[2] in a letter from Innocent II borne by Alberic, Papal Legate to England and Scotland; but Alberic did not reach Scotland till shortly before Michaelmas, 1138, when the Pope's letter was communicated at Carlisle to King David and his nobles. The announcement that Innocent II was at last the undisputed successor of St. Peter may have been made in Ireland the next month. Thus it is improbable that Malachy's plans were made, or at any rate divulged, earlier than 1139 or the end of 1138.

When the scheme was made public, we are told, it roused much opposition. St. Bernard goes on to say (§ 34), "It happened meanwhile [*interea*: i.e., while the forces of opposition were gathering] that Malachy's brother, Christian by name, died. . . . His departure . . . rendered a parting from Malachy more grievous." Now this Christian, or Gilla Criost, is commemorated on 12 June[3]: it would appear from Bernard's story that the year of his death was 1139. It seems therefore that by 12 June, 1139, consent had not been given to Malachy's project. At length it was obtained when he had resorted to threats of divine vengeance, and, against his will, lots had been cast to decide the

[1] Bern., *Ep.* 317.

[2] In *Chronicles of Stephen, Henry II, and Richard I*, ed R. Howlett (R. S.), iii, 170.

[3] Martyrology of Gorman.

question. Finally, Malachy elected Edan (Aedh O Cellaigh) as Gilla Criost's successor; "and when he had been consecrated Malachy set out on his journey." All these things must have been spread over a considerable, though incalculable, time. We are prepared to find that Malachy did not leave Ireland till very late in 1139 or even 1140. That this was so we shall soon have evidence.

But here we come upon a difficulty. The Four Masters place the death of Gilla Criost, not in 1139, but in 1138. This is a most serious discrepancy. If the story told by St. Bernard is true, and if Gilla Criost died on 12 June, 1138, Malachy's scheme must have been made public, and the opposition to it developed, within three weeks after the Papal schism ended.[1] This supposition may be pronounced impossible. We must choose between two alternatives. We may reject the date of Gilla Criost's death as given by the annalists; or we may reject St. Bernard's narrative. If the Annals are right, Gilla Criost's death can have had nothing to do with the opposition to Malachy's pilgrimage to Rome. But St. Bernard's narrative is reasonable and consistent. And he must have had information of the happenings which he records from Malachy himself, or from his disciples, at least three of whom, including Edan, were eye-witnesses of the appointment of Gilla Criost's successor. I conclude therefore, with considerable confidence, that St. Bernard's chronology is here more reliable than that of the Annals, and that Gilla Criost died on 12 June, 1139.[2]

The only explicit date which St. Bernard gives us in this connexion is found in § 30 of the *Vita*. Malachy had got as far as York when Wallevus (Waltheof), abbot of Kirkham, came to visit him. Seeing that he had only three horses, Waltheof presented him with a fourth; and the animal, we are informed, served him "till the ninth year, the year in which he died." Now Malachy died 2 Nov., 1148. It follows that his interview with Waltheof took place between 3 Nov., 1139, and 2 Nov., 1140. He set out from Bangor a fortnight or three weeks earlier. Hence the earliest possible date of his departure is the middle of October, 1139.

Now we have seen that Malachy spent about forty weeks on his first two journeys, one to and the other from Rome. On the return journey, apparently about a week before he landed in Ireland, he met King David I and his son,

[1] It also follows that Malachy's departure from Ireland did not take place till a year and a half after Gilla Criost's death. For, as is shown in the following paragraphs, he did not start for Rome earlier than the end of 1139. That the interval between the two events was so long is highly improbable.

[2] This is the year of the obit in the *Annals of St. Mary's Abbey* (Gilbert, *Chartularies of St. Mary's Abbey*, ii, 258). But they are obviously not independent of St. Bernard. In the record of Gilla Criost's death they quote some words of the *Vita S. Malachiae*.

Prince Henry, in Scotland. This meeting took place, therefore, thirty-nine weeks, or nine months, after he set sail from Bangor (§ 40). But we know something about the movements of David and Henry at this period. Peace was made between the Scots and English at Durham on 9 April, 1139. Immediately afterwards, Henry went thence to Nottingham. He remained in England throughout the summer, and returned to Scotland in the autumn.[1] In the beginning or middle of 1140 he again went to England. He had there a quarrel with Ranulph, Earl of Chester, and was in danger of his life; but King Stephen rescued him and sent him home. The intervention of Stephen is described as the cause of Ranulph's subsequent animosity against him, which had its issue in his seizure of Lincoln, and his holding of it against the king's army from Christmas, 1140, to 2 February, 1141, when the king was taken prisoner.[2] It is probable, therefore, that Henry returned to Scotland late in 1140. His father, King David, left Scotland after Ascension (8 May), 1141, to assist the Empress Matilda, and returned near the end of September.[3]

Thus there were three periods in which Malachy may have met both David and Henry during his passage through Scotland on his return journey—before June, 1140; between September (?), 1140, and 8 May, 1141; or after September, 1141. If he left Bangor as early as October, 1139, he could not have been at Cruggleton on the return journey before July, 1140. Therefore the first period is excluded. The third period is also impossible, for two reasons. It implies that he left Bangor not earlier than the beginning o 1141, eighteen months after Gilla Criost's death, and is thus inconsistent with St. Bernard's narrative; it is inconsistent, likewise, with the statement of the Annals of Tigernach that in 1140 "Mael Maedog O Morgair came from Rome."

We are left therefore with the period from September, 1140, to 8 May, 1141—or rather to 31 December, 1140—as the only possible time for his second visit to Scotland. Let us suppose that he met King David near Cruggleton on 1 September, 1140. In that case he would have left Bangor about 2 December, 1139; reached York, 19 December, 1139; Clairvaux, 30 January, 1140; Martigny, 28 February; Rome, 4 April. Leaving Rome 4 May, he would be at Clairvaux 24 June, at Cruggleton 1 September, at Bangor 8 September, 1140. This is the earliest date of his return, consistent with his meeting with David and Henry in Scotland. But I have set out the dates of his arrival at certain places *en route*, because some things have to be considered

[1] John of Hexham, in *Simeon of Durham*, ed. T. Arnold (R.S.), ii, 300.

[2] *Ibid.*, p. 306.

[3] *Ibid.*, p. 309. He was at Durham about Michaelmas: *Simeon of Durham*, Continuatio Prima (R.S.), i, 146.

besides the time of his meeting with the King of Scots and of his appearance at York. St. Bernard was at Clairvaux while he stayed there, both going and returning; Pope Innocent was at Rome during the whole month of his sojourn in the city; and Malachy is not likely to have remained there during the heat of summer. Now the Pope was at Rome from 3 October, 1139, to at least 16 July, 1140,[1] and Malachy could have stayed there long after 2 May without risk. So far, therefore, as the visit to Rome is concerned our table of dates needs no alteration. Indeed, the fact that it brings Malachy to Rome just before Easter (which in 1140 fell on April 7) is in favour of its correctness. Again, there is only one occasion on which St. Bernard is known to have been absent from Clairvaux in 1140. He encountered Abélard at the Council of Sens on 2 June,[2] and there is no difficulty in supposing that he was back in his monastery by 24 June. But, on the other hand, Malachy's object was not to spend Easter at Rome but to demand palls from the Pope, which could be done at any season of the year. It is probable, therefore, that he would have planned his journey so as to avoid crossing the Alps at the most inclement season of the year. Now our provisional itinerary makes him reach Martigny on 28 February. The pass of Great St. Bernard may not have been closed at that time in 1140. But anyone who has read the account which John de Bremble, monk of Canterbury, gives of his sufferings in that "place of torment" in February, 1188, as he tried to write a letter with powerless hands and frozen ink, complaining the while that he was in constant peril of death,[3] or the yet more graphic story of the dire effects of avalanches and storms which signalized the crossing of the pass by Rudolf, Abbot of St. Trond, in January, 1129,[4] will probably agree that Malachy, with less urgent business on hand, and perhaps less well equipped, would not take the risk of conditions so uncomfortable and so dangerous. February and March are the worst months for negotiating the pass. We should therefore probably bring the date of Malachy's journey five weeks forward. We conclude that he started from Bangor about 4 January 1140 and ended his "pilgrimage" about 10 October in the same year.[5]

[1] Jaffé, *Regesta*, p. 588 ff.

[2] St. Bernard, *Ep.* 187; *Vita Prima*, iii. 14.

[3] Stubbs, *Epistolae Cantuar.* (R.S.), p. 181; *Lectures on the Study of Mediaeval and Modern History*, 1900, p. 147.

[4] W. A. B. Coolidge, *Swiss Travel and Swiss Guide-Books*, 1889, p. 5 ff.

[5] These dates are calculated on the hypothesis that Malachy travelled at the rate of between sixteen and seventeen miles a day. If we suppose that his average rate was twenty miles a day, he may have left Bangor on 18 January, 1140, and returned on 19 September, 1140; if he walked fourteen miles a day, the corresponding dates would be 23 December, 1139, and 6 November, 1140. On any of these suppositions he would have reached Martigny about 1 April, and might have stayed a day or two in some North

Vita, §§ 67–70. We come here to St. Malachy's last journey. It began after the conclusion of a council which, as the Four Masters inform us, was held in the year 1148 on the island off Skerries, Co. Dublin, still known as Inispatrick. The reader of St. Bernard would suppose that it took place in the neighbourhood of Bangor, from which Malachy obviously started on his voyage to Scotland. But this is an example of St. Bernard's ignorance of Irish geography, of which we shall soon have further proof. Skerries is about 100 miles from Bangor; and the journey cannot have begun earlier than a week after the council. St. Malachy reached Clairvaux "four or five days" before the festival of St. Luke (18 Oct.), i.e. 13 or 14 October. He had been separated from his companions in England,[1] and travelled alone and apparently on horseback (§ 36). His journey from the coast may therefore have been more rapid than usual. But it is to be noted that his companions apparently overtook him at Clairvaux on 17 October. They probably crossed the Channel on 30 September, and Malachy about the same time, perhaps from a different port.

King Stephen refused to allow Malachy to cross to France, and he was in consequence detained for a considerable time in England. It seems possible to determine approximately the date of his arrival at the English coast from the following statement of St. Bernard (§ 69):—

"Departing thence [i.e. from Gisburn] he came to the sea, but was refused passage. . . . If he had immediately passed over the sea, he would have been obliged also to pass by Clairvaux in order to follow the chief pontiff. For by that time he had left it and was at or near Rome."

We must recur to this passage at a later stage. Here it is sufficient to say that the latter part of it is incorrect. Pope Eugenius was not near Rome till 30 November, when he reached Viterbo, having left Siena only the previous day. St. Bernard must have calculated the date of his arrival at Rome, on the supposition that he would proceed thither at the leisurely rate at which he advanced in the earlier stages of the journey. He left Clairvaux on 27 April, and Lausanne, 167 miles on the road, on or soon after 20 May.[2] Thus he accomplished nearly a quarter of the way to Rome in twenty-three days. The whole distance would have taken rather more than three months. He might therefore have been expected to arrive at Rome by the end of July. By that time, then, we may conjecture that Malachy was on the coast of Kent. The previous part of his journey was evidently slow. On his first day in Scotland

Italian town, perhaps Ivrea, for Easter. If so, the dates for the remainder of the journey must be advanced some days. On the hypothesis as to his rate of travel assumed in the text, he would have left Rome shortly after the octave of Pentecost.

[1] *Serm.* i *in trans. Mal.*, § 1. [2] Jaffé, p. 634.

he walked only eight miles, and then stopped to found a monastery at Soulseat. A little later he spent several days with King David. He went aside just over the border to visit the community at Gisburn.[1] In his passage through England he had many hindrances which doubtless involved further delay.[2] The journey from Bangor to Dover at the ordinary rate would have been accomplished in five weeks: it probably lasted at least seven. Adding a week for the walk from Skerries to Bangor, we reach the end of May, 1148, as the approximate date of the Council of Inispatrick. But it must be remembered that this is an inference from very uncertain indications.

We may now turn back to consider some dates given by St. Bernard which are apparently incorrect.

Vita, § 24. "In the thirty-eighth year of his age the oppressor [Niall] having been driven out, the poor man, Malachy, entered Armagh, Pontiff and Metropolitan of all Ireland." Since Malachy was born in 1095 before November, he was thirty-eight years old in 1133 before November. But his contest with Niall's predecessor was not over till 17 September, 1134. This date is therefore manifestly wrong. The true date is the end of 1134, when, according to the Four Masters, "a change of abbots took place at Armagh, i.e. Mael Maedog O Morgair in the place of Niall." Bernard wrote "thirty-eighth" in error for "fortieth." The origin of the mistake is obvious. Three years after the death of Cellach, Malachy began his struggle with Muirceartach, and for two years before the death of that "oppressor" (17 September, 1134), he exercised his functions outside the city (§§ 20, 21), or, as the Four Masters have it, under 1132, he "sat in the comarbate of Patrick." This is the principal event of Malachy's thirty-eighth year. Bernard, by some misunderstanding of his documents, has transferred the date to a somewhat similar incident two years later. Nor is he to be blamed. The entry in the Four Masters, if we had not St. Bernard's own narrative to explain its meaning, would most naturally be taken to imply an entry into Armagh.

A more serious confusion occurs at an earlier period. As we have seen, Malachy was appointed vicar of Cellach in 1119 or 1120. St. Bernard gives an account of his labours in that capacity (§§ 6, 7) which, if it is not wholly imaginary, proves that Malachy held the office for a year or two. Desiring further instruction, with the consent of Cellach and his master Imhar, he afterwards visited Malchus at Lismore, "and remained with him some years" (§ 8)—which can hardly mean less than three. During these years he made the acquaintance of Cormac Mac Carthaigh, who had been dispossessed of his kingdom of Desmond, and was now a refugee at Lismore. In due time

[1] *Vita*, § 68, f. [2] *Serm.* i. *in trans. Mal.*, § 1.

Cormac was restored to the throne (§§ 9, 10). Subsequently Malachy was recalled by Cellach and Imhar, who could "tolerate his absence no longer." So he returned to "his own people" (§ 12). A stay at Armagh, perhaps brief, is clearly indicated (cp. § 14). After this he went to Bangor, where he re-founded the ancient monastery of St. Comgall. At Bangor he continued long enough to surround himself with a numerous "congregation" and to acquire great fame (§ 15). Subsequently he became bishop of Connor—as we have seen, in 1124. St. Bernard evidently supposed that the re-founding of Bangor took place a considerable time before Malachy's consecration. He had been elected bishop "long" before he was consecrated (§ 16). But he implies that his account of his work at that place extends into his episcopate, remarking that "he remained there even after he was made bishop, for the place was near the city" [i.e. Connor]—a good example of his confused notions of Irish topography. Now I believe anyone who reads the sections of the Life to which I have referred will come to the conclusion that the chronology is congested. The year or two of Malachy's vicariate, his three years at Lismore, a short sojourn at Armagh and a long one at Bangor, can hardly be compressed into the interval between 1120 and 1124. Let us see whether the Annals give us any help towards a solution of the difficulties which suggest themselves.

First we note that they confirm some parts of St. Bernard's narrative. We might expect that Malachy's vicariate would terminate about August, 1121, on the return of Cellach from Dublin. This would give sufficient time for the work which St. Bernard connects with his tenure of that office. But that Cormac MacCarthaigh came to Lismore in that year is at least probable. For under 1121 several of the Annals have an entry to this effect: "A hosting was made by Toirrdelbach [O Conchobhar] in Desmond, and he arrived *at the termon of Lismore*, and he obtained countless cattle-spoils." What more natural than the flight of Cormac to the sanctuary of Lismore under the stress of this invasion of Desmond? We need not doubt (1) that Malachy's vicariate ended in the latter part of 1121; (2) that he then proceeded to Lismore; and (3) that he met Cormac there.

Again, the deposition of Cormac, his "pilgrimage" at Lismore, and his return from that place to his kingdom are certainly historical. They are related under the year 1127 in all the principal Annals with greater or less fulness of detail.

But, on the other hand, the Annals make it quite clear that Cormac did not visit Lismore in 1121 as a deposed monarch. He did not succeed to the crown of Desmond till the death of his father Tadhg MacCarthaigh, which the annalists place under 1124. His deposition, pilgrimage, and restoration are assigned by the same authorities to the year 1127, three years after Malachy

became bishop of Connor. The latter incidents may, in fact, be connected with another event, to which St. Bernard gives a vague date (§ 18): "It happened some years after [Malachy's consecration as bishop] that the city [Bangor?] was destroyed by the king of the Northern part of Ireland." In consequence of this Malachy again went southwards and founded the monastery of Iveragh, where he remained until after the death of Cellach in 1129. There is no mention here of a visit to Lismore; but if Malachy had any part in the restoration of Cormac to his kingdom, he must have been there in 1127. Moreover St. Bernard tells us that Cormac gave liberal assistance to the community at Iveragh. I venture therefore to reconstruct this part of the story thus. In 1127, some (more exactly, three) years after his consecration, Malachy's monastery at Bangor was destroyed by the king of Northern Ireland Conchobhar O Lochlainn), and he fled to Lismore. There he made, or renewed, acquaintance with the deposed king of Desmond, Cormac MacCarthaigh. When Cormac was restored, Malachy moved on to Iveragh, in Desmond, and there founded a new monastery under his patronage.

One difficulty in the way of this reconstruction ought to be mentioned. There is no record in the Annals of an invasion of the Bangor district in 1127; but three years later all of them describe a raid, which has often been identified with the one referred to by St. Bernard.

"1130. A hosting by O Lochlainn, i.e. Conchobhar son of Domhnall, and by the North of Ireland into Uladh. The men of Uladh assembled to give them battle . . . The men of Uladh were finally defeated and slaughtered . . . And they plundered the country as far as the east of Ard [Bangor district] both churches and lay property."

If we take this to be the raid in the course of which the destruction of Bangor referred to by St. Bernard took place, we are forced to regard the section of the *Vita* which we are considering, as of very slight historical value. We must suppose that Malachy was at Bangor from 1124 to 1130. He cannot then, have assisted in the restoration of Cormac MacCarthaigh, which undoubtedly occurred in 1127. Moreover, on the same hypothesis, he cannot have gone to Iveragh till at least a year after Cellach's death (1st April, 1129), though St. Bernard expressly states that he was there when Cellach fell sick (§ 19). I conclude, therefore, either that the annalists omitted to mention the destruction of Bangor alluded to by St. Bernard, which is certainly not inconceivable, or that they misplaced the record of the raid of which it was an incident, which is less likely, though not impossible.

We have found, then, that St. Bernard has confused two distinct visits of Malachy to Lismore, one of which was made before, and the other after, he

became bishop of Connor. But that discovery does not dispose of our difficulty. St. Bernard says that Malachy spent several years at Lismore. That he cannot have done on the occasion of his second visit; all the probabilities are in favour of the supposition that it was of short duration. We do not get rid of the difficulty caused by his long sojourn in the south between 1120 and 1124 by removing one event of it to a later period. The chronology remains as congested as ever. I proceed to suggest a way of relief.

In the year 1123 there died at Lismore one Aengus O Gormain, comarb of Comgall. So the annalists tell us.[1] His successor was duly elected at Bangor. He was Malachy's uncle, and shortly after his election he resigned his office in favour of his nephew, desiring at the same time that he himself should live as a member of the community (*Vita*, § 12). Thus it was open to Malachy to become comarb of Comgall. He was still at Lismore, if we are right in believing that he went there in 1121 and stayed with Malchus for "several years." Now Cellach and Imhar would naturally see in the offer of the comarbate which had been made to him an opportunity of carrying into effect the ordinance of the decree of Rathbreasal which created the diocese of Connor. Just as Cellach, elected as a layman to the chair of Patrick, was shortly afterwards consecrated, and thus became episcopal ruler of a diocese, so might the abbot of Bangor, if he was a bishop and a forceful man, subjugate the territory in which Bangor was situated to episcopal rule. So they recalled Malachy to the North. They recalled him, not, as St. Bernard says, to Armagh, but to Bangor; not because they wished to have the benefit of his society, for Bangor is a long way from Armagh: not merely because they desired that he should be abbot of Bangor; but because they hoped that having the prestige which belonged to the successor of St Comgall and the orders of a bishop, he would be able to organize the hitherto non-existent diocese of Connor. To Bangor, accordingly, he went. His consecration synchronized with, or shortly followed, his induction to the abbacy.[2]

If that is what actually happened, the chronology becomes simple. The vicariate of Malachy began in 1120. He retired to Lismore late in 1121. Having spent three years there, he went to Bangor as bishop of Connor and comarb of Comgall. And this harmonizes with the Annals. They say nothing about his abbacy, while duly recording the beginning of his episcopate. But if his office of abbot had not been from the first merged in that of bishop, it is almost inconceivable that they should never accord him the title of comarb of Comgall.

[1] *Annals of Ulster* and Four Masters.

[2] Malachy may have passed through Armagh on his way to Bangor, as a glance at the map will prove. Possibly he stayed there for a short time, and was consecrated before he left.

St. Bernard, of course, could not be expected to understand such procedure. That a man should at the same time be made bishop and also abbot of a monastery outside his see was contrary to his notions of ecclesiastical decorum. So he separates the period of Malachy's office of abbot from that of his office as bishop. To be sure, an abbot might be promoted to a bishopric: but then his obvious duty was to leave the abbey and to go to his see. And so St. Bernard apologizes for Malachy's continued residence at Bangor, on the ground that it was near the see, which is simply not the case. He ignores the fact, which may be inferred from hints in his own pages,[1] that Malachy remained abbot of Bangor to the end of his life, following the example of many other Irish abbot-bishops of past ages, such as Aidan of Lindisfarne. Once again he has misread his documents through ignorance of Irish ecclesiastical custom, of which even Cellach and Malachy had not wholly set themselves free.

I may now venture to set out a tentative chronology of Malachy's life.

1095, before November. Malachy born.

c. 1119. Ordained priest.

1120. Appointed Vicar of Cellach.

1121, after July (?). Visits Lismore. Remains there three years, during which he makes the acquaintance of Cormac Mac Carthaigh.

1124. Made bishop of Connor and abbot of Bangor.

1127. Bangor destroyed. Second visit to Lismore. Malachy again meets Mac Carthaigh, and assists in his restoration as King of Desmond.

1128 (?). Founds the monastery of Iveragh.

1129, April 1. Death of Cellach. Malachy appointed his successor.

1132. Enters upon a contest for the see of Armagh against Muircheartach, and begins to execute his functions as archbishop outside the city of Armagh.

1134, September 17. Death of Muircheartach. Niall succeeds him and is driven out by Malachy.

1137. Malachy retires to the diocese of Down, having consecrated Gilla mac Liag (Gelasius) as Archbishop of Armagh.

1139, June 12. Death of Gilla Criost O Morgair.

1140, January. Malachy leaves Bangor for Rome.

October. Returns to Bangor.

[1] E.g., § 63, which implies that after his return from Rome St. Malachy lived at Bangor, had authority to dispose of the property of the community, and generally held the same position in relation to the brothers as in 1124.

1148, June (?). Malachy leaves Bangor for Clairvaux.
October 13 or 14. Reaches Clairvaux.
October 18. Taken ill.
November 2. Dies.

4. THE DATE OF *Sermo* I *in Transitu S. Malachiae.*

This discourse seems to have been delivered on the day of Malachy's death. The following reasons may be given for this opinion :—

1. It was certainly preached either on the actual day, or on an anniversary. Of the passages which prove this the following may be quoted :—

§ 1. "A certain abundant blessing, dearly beloved, has been sent by the counsel of heaven to you this day. . . . None can reasonably doubt that it was by the good gift of heaven, and determined by divine purpose, that Bishop Malachy should fall asleep among you to-day."

§ 8. "To this wealthy place, dearly beloved, let us run with all eagerness of spirit, in the fragrance of the ointments of this our blessed father, who this day has been seen to have stirred up our torpor to most fervent desire."

The latter of these passages appears pointless if "this day" means merely the anniversary of Malachy's death.

2. In § 5, quoting the saying "with desire I have desired to eat this passover with you," which in *Vita*, § 73, is said to have been uttered with his eyes fixed "on those who stood round him," St. Bernard says, "As he went he said *to us*," indicating that the brothers who had tended Malachy in his illness were present. On the other hand, in § 1 some details of Malachy's last visit to Clairvaux are related, which could not be unknown to the brethren who were in the monastery when he came. This may seem to point to a later date than the day of the death. But it must be remembered that at his funeral there were some who might not have known them, for example, the abbots who carried him to the oratory (*Vita*, § 74), and others who had come from distant places (§ 75).

3. § 6. St. Bernard says that Malachy dwelt without personal property among the religious communities "up to this time." The phrase could not have been used long after Malachy's death.

4. The general tone of the Sermon gives the impression that both the speaker and his hearers were sorrowing for a recent loss. This will be felt by anyone who observes the difference of tone in *Sermo* ii, which was certainly preached on an anniversary.

5. But perhaps the strongest argument for the date of the Sermon is that which is founded on the coincidences between it and the letter in which St. Bernard announced the death of St. Malachy to the brothers in Ireland

(*Ep.* 374). I print opposite each other such parallels as I have noticed between these two compositions.

Serm. i.

§ 1. Iamque omnibus ad eum collectis ad Romanam, pro qua uenerat, *curiam* parabat iter ; cum subito infirmitate praeuentus sensit protinus *ad caeleste* magis sese palatium euocari, Deo melius aliquid prouidente nobis, ne a nobis egressus alibi consummaretur.

§ 8. Deuotas omnipotenti misericordiae gratias referentes, quod indignis seruulis suis, quibus propria desunt merita, aliena saltem uoluit suffragia non deesse.

Ep. 374.

§ 2. Dehinc etiam utilitatis propriae consideratio exsultandum nobis suggerit et laetandum, quod tam potens suos patronus *ad caelestem curiam*, tam fidelis praecessit aduocatus ; cuius et feruentissima charitas obliuisci nequeat filiorum, et probata sanctitas obtineat gratiam apud Deum.

I lay no stress on these two passages of the Sermon as indicating a connexion between it and the Epistle. In the first there is a slight similarity to the Epistle in phrase, and considerable dissimilarity in thought. In the second the thought is not unlike that of the Epistle, but the language is entirely different. I print them here, because, taken by themselves, they seem to be rather unfavourable than favourable to my thesis, inasmuch as a closer parallel to the corresponding passage of the Epistle is found in *Serm.* ii. See below, p. 262.

Serm. i.

§ 2. Agimus itaque gratias Deo super omnibus dispositionibus suis, quod indignos nos *beatae mortis eius honorare praesentia*, quod pauperes suos *pretiosissimo corporis eius locupletare thesauro*, quod infirmos uos tanta ecclesiae suae uoluit facile columna.

§ 3. Caeterum populo illi *affectuosius* condolere ; et eius quae tam *miserabili ecclesiae* dirum hoc uulnus non pepercit inferre, crudelitatem uehementius abhorrere, beati huius patris charitas ipsa impellit.

Ep. 374.

§ 8. Magnificauit enim Dominus facere nobiscum; cum locum nostrum dignatus est *beatae mortis eius honorare praesentia*, et *pretiosissimo corporis eius locupletare thesauro*.

§ 3. Et nunc quoque, dilectissimi, Hibernensis *ecclesiae* grauem hanc destitutionem toto *miseramur affectu* ; et eo amplius uobis compatimur quo nos amplius ex hoc nouimus debitores.

Serm. i.

§ 8. Triplex proinde *congratulatio* est hominis, ab omni peccato et *labore* et *periculo* liberati.

§ 4. Pretiosa [mors] plane, tamquam finis *laborum*, tamquam uictoriae consummatio, tamquam uitae ianua et perfectae *securitatis* ingressus. § 5. Congratulemur *itaque* fratres, congratulemur, ut dignum est, patri nostro: quia *et pium est defunctum* plangere *Malachiam et pium magis Malachiae congaudere uiuenti. Numquid non uiuit? Et beate.* Nimirum *uisus est oculis insipientium mori, ille autem est in pace.*[1] Denique iam conciuis sanctorum et domesticus Dei psallit pariter et gratias agit dicens, transiuimus per ignem et aquam, et eduxisti nos in refrigerium. Transiuit plane uiriliter et feliciter pertransiuit. Verus Hebraeus pascha celebrauit in spiritu, et nobis transiens loquebatur, Desiderio desideraui hoc pascha manducare apud uos. Transiuit per ignem et aquam, quem nec tristia frangere nec detinere mollia potuerunt.

Ep. 374.

§ 1. Ingratitudinis rei esse conuincimur . . . si non *congratulamur* ei qui de *labore* ad requiem, de *periculo* ad *securitatem*, de mundo transiit ad Patrem. *Itaque et pium est Malachiam* flere *defunctum, et pium magis Malachiae congaudere uiuenti. Numquid non uiuit?* Utique, *et beate. Visus est oculis insipientium mori, ille autem est in pace.*

§ 8. Ad hoc nos refrigerium, dilectissimi, tota animi *auiditate curramus in odore* unguentorum huius beati patris nostri qui nostrum hodie torporem in feruentissimum desiderium uisus est excitasse. *Curramus*, inquam, post eum, crebrius illi clamantes, *Trahe nos post te.*

§ 4. Nam et nostram non mediocriter excutere desidiam et reuerentiam incutere caepit praesens nobis tantae perfectionis exemplar. Atque utinam sic *nos post se trahat* ut pertrahat *in* tam recenti uirtutum eius *odore auidius* alacriusque *currentes.*

These similarities of phrase and thought demonstrate that one of the two documents which we have compared together was in some measure dependent

[1] The remainder of the passage has no coincidence with the Epistle. I print it here for future reference.

on the other. Now we have to remember that neither of them is in the proper sense of the words a literary document. St. Bernard's sermons were obviously of the type which we call *extempore*. A general plan was no doubt laid down for each before it was delivered, and some thought was given to details. But, on the whole, its phrasing and even some of its matter were due to the inspiration of the moment. Much the same may be said of many of his letters, and, among them, of the letter of condolence to the Irish brothers. Striking phrases in such documents might re-appear for a time in other compositions of the same writer, but not, I think, over a very long period. I cannot believe that a considerable number of phrases and even whole sentences would be carried forward from the letter to the sermon, or from the sermon to the letter, if there was an interval between them of nearly a year. Since, then, we may be sure that the letter of condolence was penned as soon as a messenger could be found to carry it—i.e. almost certainly in November, 1148—the Sermon cannot have been as late as 2 November, 1149. The only earlier date which can be assigned to it is 2 November, 1148, the day of Malachy's death.

5. The Date of the *Vita S. Malachiae*.

St. Malachy died on 2 November, 1148, and St. Bernard on 20 August, 1153. Between those two days the Life of Malachy was written. But we can draw the limits of its date a little closer together. St. Bernard undertook the task of writing it in response to a request of Abbot Congan.[1] The letter which conveyed the request cannot have been written till after St. Bernard's letter of condolence had reached Ireland; and it can scarcely have come into St. Bernard's hands before the end of 1148. It follows that the Life was not finished earlier than January, 1149. On the other hand, Gilla Criost (Christian) is described in the Life[2] as abbot of Mellifont. But he was Bishop of Lismore and Papal Legate on 9 March, 1152, when the Synod of Kells met, under the presidency of Cardinal John Paparo.[4] Unfortunately we cannot tell when either of these offices was conferred upon him. It might have been supposed that he would have been appointed legate not long after Malachy's death. But though the Pope would probably lose no more time than was necessary in providing a successor to Malachy, he may have had difficulty in communicating with Irish ecclesiastics. Paparo

[1] *Vita*, Praef. 2. [2] *Ep.* 374. [3] §§ 11, 52.

[4] Keating, *Hist.* (ed. Comyn and Dinneen), iii. 315. Keating calls this Gilla Criost head of the monks of Ireland, thus identifying him with the abbot of Mellifont. See also Annals quoted by Ussher (Works, iv, 342).

himself was prohibited by King Stephen from going to Ireland in 1150.[1] Paparo arrived towards the end of 1151, probably in October[2]; and if, as is likely, he was the bearer of Gilla Criost's legatine commission, it might be inferred that the Life of Malachy is to be dated before the end of that year. But all that can be said with certainty is that it was published within the period January, 1149, to March, 1152.

There is, however, a passage in the Life itself which points to the very beginning of that period. It is the sentence, already quoted, in which the assertion is made that when Malachy reached the coast of Kent Eugenius was already at or near Rome.[3] How St. Bernard could have said this, even at the time of Malachy's death, not to speak of a later date, is hard to understand.

The Pope left Clairvaux in the last week of April, 1148, by the ordinary route over the Great St. Bernard, and on 30 June he dated a letter from Pavia. St. Bernard, when he wrote, can scarcely have known how he lagged on his way. At Pavia he left the Rome road in order to visit Cremona, Brescia, where he spent two months, and Pisa, where he remained for at least a month. From that place he once more turned his face towards Rome, and reached Viterbo on 30 November. Apparently another year passed before he was at the Lateran (28 November, 1149).[4] St. Bernard cannot have been aware of all this when he wrote his Life of Malachy. And yet there was no man outside Italy who was more likely to be conversant with the doings of Popes than he; and there was no Pope of his time whose movements would have a greater interest for him, on personal grounds, than Eugenius, the "special son of Clairvaux." He must surely have been better informed when he sent the first book of his *De Consideratione* to Eugenius in 1149. We do not entirely remove the difficulty due to his ignorance by assigning an early date to the *Vita*. But evidently the further back we can place it the less the difficulty becomes. What, then, is its earliest possible date?

I have already suggested that it cannot have been written before January, 1149. But some may be disposed to think that it must be considerably later. It may be urged that time was required to collect material, especially the facts which were communicated by Congan and other Irish friends. But that is not by any means certain. Some, if not all, of the Irishmen from whom St. Bernard acquired information, apart from Malachy himself, had been under his instruction at Clairvaux, and they were coming and going for

[1] John of Hexham in *Simeon of Durham*, ii, 326. [2] *Ibid.*; Four Masters.
[3] Above, p. 249. [4] Jaffé, *Regesta*, pp. 635–639.

some time after the foundation of Mellifont in 1142.[1] There is little in the Life which may not have been learned from them, from Malachy, or from his companions in travel, who were at Clairvaux for a fortnight before his death.[2] Various incidents of Malachy's life may also have been communicated to St. Bernard in letters written to him by Irish acquaintances.[3] It should be borne in mind that he may have been collecting materials for a Life of Malachy for many years. Material for his own Life had been gathered during his lifetime by the monk William, with the intention of publishing it after his death. What he wrote was actually given to the world long before that event, and now forms the first book of the *Vita Prima*.[4] This was probably not without parallel. There is at any rate evidence that St. Bernard knew a good deal about Malachy's career while he was still alive. For example, in his first sermon on St. Malachy (§ 6), which I have tried to show was delivered on the day of his burial, he gives an account of the contest for the see of Armagh, the story of which occupies a seventh part of the *Vita*. In the sermon, of course, St. Bernard does not enter into details; but he displays accurate knowledge, and we may believe that he was aware of much to which he does not allude. I see no reason, therefore, to doubt that St. Bernard was sufficiently equipped with information to write the Life immediately after the request that he should do so came to him from Ireland. In view of his ignorance of the Pope's movements in the latter part of 1148, I am therefore disposed to date its composition in the first weeks of 1149.

6. The Date of *Sermo* II *in Transitu S. Malachiae.*

The second Sermon on the Passing of Malachy was certainly preached on an anniversary, not on the actual day, of his death. This is shown by the references in § 7 to Malachy's "festival," and his "delicious feast," for which St. Bernard and his hearers were met together. The date is therefore 2 November in 1149, 1150, 1151, or 1152; for St. Bernard died 20 August, 1153.[5] To guide us in our choice among those years, I can find no indications except coincidences with other compositions of St. Bernard.

In the printed text of the sermon there is a very remarkable coincidence with *Ep.* 374. The passage in which it is contained is in § 5, and runs thus:—

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[1] See Bern., *Ep.* 357, and for the founding of Mellifont, *Annals of St. Mary's Abbey*, *Annals of Boyle*, and *Clyn's Annals*, s. a. 1142.

[2] *Serm.* i *in trans. Mal.*, § 1.

[3] Cp. *Epp.* 341, 356, 357; *Vita*, Praef. 2.

[4] *Vita Prima*, i, Praef.

[5] *Ibid.* v. 15, 16.

"Congratulemur itaque, fratres, congratulemur, ut dignum est patri nostro; quia et pium est defunctum plangere Malachiam, et pium magis Malachiae congaudere uiuenti. Numquid non uiuit? Et beate. Nimirum uisus est oculis insipientium mori, ille autem in pace. Denique iam conciuis sanctorum et domesticus Dei, psallit pariter et agit gratias dicens, transiuimus per ignem et aquam, et induxisti nos in refrigerium. Transiuit plane uiriliter et feliciter pertransiuit. Verus Hebraeus pascha celebrauit in spiritu, et nobis transiens loquebatur, Desiderio desideraui hoc pascha manducare apud uos. Transiuit per ignem et aquam, quem nec tristia frangere, nec detinere mollia potuerunt."

Now, a reference to p. 257, above, will show that the first few lines of this extract are nearly identical with a sentence or two of the Epistle. But it will also show that the whole extract is absolutely identical with the portion of *Serm.* I, § 5, there quoted. It is obviously unlikely that so long a passage should be repeated *verbatim* in a second sermon delivered at least a year after the first. There is, therefore, grave reason to suspect that it is an interpolation in one or other of our two sermons. But it will be seen that in *Serm.* I it rises naturally from the preceding section; and it will be observed that the train of thought which leads up to it there is similar to that which leads up to its parallel in the Epistle. It may be added, that in *Serm.* I it is followed by a passage which explains and develops the application to Malachy of the words *Transiuit per ignem et aquam.* In other words, it is in complete harmony with its context.

But that it is alien to its context in *Serm.* II is easily proved. In § 5 of that discourse, St. Bernard is enlarging on the significance of the name *Malachias*, which is the Hebrew for *My Angel*, with a Latin termination. Omitting the passage under consideration, the section runs thus:—

"Pro huiusmodi ergo dilectus a Deo et hominibus non immerito hodie Malachias in consortium angelorum recipitur, re adeptus quod nomine dicebatur. Et quidem ante angelus erat non minus puritate quam nomine; sed nunc felicius gloriosi in eo interpretatio nominis adimpletur, quando pari cum angelis gloria et felicitate laetatur. Laetemur, quod angelus noster ascendit ad ciues suos, pro filiis captiuitatis legatione fungens, corda nobis concilians beatorum, uota illis intimans miserorum. Laetemur, inquam, et exultemus, quia caelestis illa curia ex nobis habet, cui sit cura nostri, qui suis nos protegat meritis, quos informauit exemplis, miraculis confirmauit."

We read this without consciousness that there is anything lacking. But if with the printed text we insert "Congratulemur itaque," &c., after "felicitate laetatur," we perceive that it interrupts the argument, and has no real nexus with what precedes and follows. We may conclude with certainty that its

presence here is due to the mischievous activity of a scribe, and that it is not part of the sermon.[1]

Setting it aside, only one parallel with *Ep.* 374 remains :

Serm. ii.	*Ep.* 374.
§ 5. *Laetemur*, inquam, et *exultemus*, quia *caelestis* illa *curia* ex nobis habet cui sit cura nostri, qui suis nos protegat meritis, quos informauit exemplis, miraculis confirmauit.	§ 2. Dehinc etiam utilitatis propriae consideratio *exsultandum* nobis suggerit et *laetandum*, quod tam potens suos patronus ad *caelestem curiam*, tam fidelis praecesserit aduocatus ; cuius et feruentissima charitas obliuisci nequeat filiorum, et probata sanctitas obtineat gratiam apud Deum.

The several books of which St. Bernard's treatise *De Consideratione* is composed were written at intervals. The first was penned in 1149, the second in 1150, and the third early in 1152.[2] I have observed the following parallels to our sermon in that work :—

Serm. ii.	*De Consid.*
§ 3. Non enim ita omnibus intendebat ut se solum exponeret, solum curae exciperet generali. Erat et sui sollicitus, seipsum custodiebat. Ita denique totus suus et *totus omnium erat*, ut nec charitas a custodia sui nec proprietas ab utilitate communi eum impedire uel retardare in aliquo uideretur.	i. 6. Si item *totus* uis *esse omnium*, instar illius qui omnibus omnia factus est, laudo humilitatem, sed si plena sit. Quomodo autem plena, te excluso? Et tu homo es. Ergo ut integra sit et plena humanitas, colligat et te intra se sinus qui omnes recipit . . . Quam ob rem cum omnes te habeant esto etiam tu ex habentibus unus.
§ 4. Sine *otio* tempus quod *otio* dederat transigebat. Quomodo *otiosus* quando exercebatur in iustificationibus Domini?	iv. 12. In *otio* non *otiosi*.

Much more striking than any of these, I venture to think, are the following parallels between the second Sermon and the Life of Malachy :—

Serm. ii.	*Vita S. Malachiae.*
§ 2. Ipse est qui pacis quam fecerat uiolatores *spiritui erroris traditos frustratus* est *in* malo quod facere *cogita-*	§ 58. Interim uero impii cum quibus fecerant pacem insequi non desistebant ad perdendum eos ; et ecce spiritus

[1] After these paragraphs were in type I observed that the suspected passage is omitted in the Trinity College MS., F. 4. 6, which contains a fragment of this sermon, imbedded in the text of the *Vita*. In that MS. for *Laetemur quod* we find the reading *Laetemur et nos dilectissimi quod*, which I have no doubt is correct.

[2] Migne, *P. L.*, clxxxii, 723.

bant; ac denuo coegit ad pacem, *confusos* quidem et stupefactos in eo quod sibi contigerat. Ipse enim est cui aduersus alios *pacti* aeque *praeuaricatores* riuus officiosissime adfuit, miro modo obiectu sui euacuans molimina impiorum. *Imbres non erant*, non *illuuies* aquarum, non concursus nubium, non liquefactio niuium, cum subito factus est in fluuium magnum qui riuulus erat; et riuus ibat et *intumescebat inundans* et *negans* omnino *transitum* uolentibus malignari.

mendax in ore quorundam uirorum qui eos deciperet. . . . Cumque uenissent et inuenissent nihil horum quae nuntiata erant, *confusi* sunt deprehensi in malitia sua. Et cognouerunt *spiritui erroris* se *traditos*. . . . Porro episcopus audiens *frustratos* proditores in iniquitate sua quam *cogitauerant*. . . . § 59. Fluuiolo . . . retenti sunt. Neque enim iam fluuiolus sed plane *fluuius* ingens apparuit, ubique sui transire *uolentibus transitum negans*. Mirari omnes tantum nunc esse, tantillum antehac fuisse scientes, et loqui inter se, Vnde *inundatio* haec? aer serenus est, *imbres non sunt* nec proxime fuisse meminimus. Et si multum pluisset quis nostrum unquam hactenus meminit in quantacumque *illuuie* ita *intumuisse* ut operiret terram sata et prata peruaderet? . . . Dominus saepit uias nostras propter sanctum suum Malachiam cuius *praeuaricati pactum*.

In the sentence immediately preceding the foregoing extract from the Sermon it is said that on one occasion Malachy blinded a king; immediately after the parallel passage in the *Vita* this incident is recounted at length.

Serm. ii.

§ 3. Qui quasi unus omnium parens uiuebat omnibus. . . . *Non sexus, non aetas, non conditio* discernebatur, aut persona; deerat nemini, expanso omnibus gremio pietatis.

§ 4. Sermo illi in tempore otii aut serius aut nullus. *Aspectus* eius aut officiosus aut demissus et cohibitus intra se . . . *risus* aut indicans charitatis aut prouocans, rarus tamen et ipse. . . . Qui ita nuntiaret cordis laetitiam ut ori gratiam non minueret sed

Vita S. Malachiae.

§ 42. Non est qui se abscondet ab opera sollicitudinis sui. *Non sexus, non aetas, non conditio*, non professio reputatur.

§ 43. Quid non aedificans in eius incessu, *aspectu*, habitu, *cultu*? Denique *cultus hilaritatem* non fuscauit moeror nec *leuigauit risus*. Totum in eo disciplinatum.

augeret. Tam modestus ut *leuitatis* non posset esse suspectus, tantillus tamen ut *hilarem uultum* ab omni tristitiae naeuo uel nubilo uindicare sufficeret.

§ 8. *Mors* tua *mortis portus et porta uitae.*

§ 75. Quid rationis habet immoderatius plangere Malachiam quasi non sit praetiosa *mors* eius . . . quasi non sit *mortis portus et porta uitae.*

§ 8. *O oliua fructifera in domo Dei ! O oleum* laetitiae *ungens et lucens,* fouens *beneficiis,* coruscans *miraculis !* Fac nos eius qua frueris lucis *suauitatis*que participes.

§ 47. *O oliua fructifera in domo Dei ! O oleum* iucunditatis *ungens et lucens !* Et splendore *miraculi* illustrauit sanos et *suauitate beneficii* unxit infirmum.

These coincidences seem to prove that there is a relation between the second Sermon and the Life of Malachy of the same kind, though perhaps not so close, as that which subsists between St. Bernard's letter of condolence to the Irish brothers and the first Sermon. But in this case we cannot at once infer proximity of date. For here one of the two compositions which have been compared is a literary document. Even a versatile orator might be expected to repeat in a speech forms of expression which he had used in a careful treatise written some months earlier. But, on the other hand, the phrases of a speech would not be likely to re-appear in a treatise composed after a considerable interval. In short, in the case before us two hypotheses are possible. Either the Life was written some time—perhaps not a short time—before the Sermon was preached; or it was written soon after the Sermon. The latter hypothesis is excluded; for the earliest possible date of the Sermon is 2 November, 1149, and I may claim to have shown that the Life cannot have been written after that day. On the other hand, if the Life appeared early in 1149, it is possible that some of its phrases or sentences might be found in a sermon on St. Malachy delivered nine months later. But it is certainly by many degrees less conceivable that echoes of its language should be heard in a sermon preached a year and a half, or more, after its publication. I suggest, therefore, that the date of the second Sermon on the Passing of Malachy is 2 November, 1149. On that supposition one of the two phrases which appear in the first pair of parallel passages quoted above from the Sermon and *De Consideratione*, *totus omnium erat* and *totus esse omnium*, may be an echo of the other; for the first book of the *De Consideratione* appeared in 1149.

VII.

SOME ANCIENT DEEDS OF THE PARISHES OF ST. CATHERINE AND ST. JAMES, DUBLIN.

1296–1743.

By HENRY F. TWISS, I.S.O., Litt.D.

Read February 24. Published May 16, 1919.

The original early deeds of St. Catherine's parish, Dublin, now extant, which are in custody of the trustees, are nineteen in number. There is also in the rector's hands an old volume which contains transcripts of these, as well as of several leases, subsequent in date, the period covered by all extending from 1296 to 1743. The nineteen deeds are kept in blue numbered envelopes in a safe that is opened by three separate keys, standing in the passage between St. Catherine's Church and the vestry. They are numbered as in the present calendar, save that Nos. 11 and 12 in it are 12 and 11 of the deeds; 15 and 19 are not two of the series of originals; 16, 17, 18, 20, and 21 in the calendar are accordingly numbered 15, 16, 17, 18, and 19. The old volume was at one time in the possession of the late Mr. Edward Evans, of Corn-market, the well-known antiquary, and it contains several historical notes signed by him. The book was presented in 1914 to the rector, who gladly took charge of it. This ms. copy gives the deeds in the same order as the calendar, except that it transposes the order of Nos. 16 and 17, and omits 14 and 21, while it is the sole authority for Nos. 15 and 19. Together with the original deeds in the blue numbered envelopes there was an old transcript of each deed. Nos. 1 to 5 and 13 of these, however, are now missing. The numeration on these old transcripts corresponds to that in the margin of the Evans ms. The original of No. 3 is at present missing; but the paper in which it was folded inside the blue numbered envelope is marked "Exhibited, C. McCready, R.C.B., 29/6/72," so that the original was evidently in existence in 1872. Deeds 2, 5, 6, 11, as well as the missing No. 3, are folded in papers also marked, "Exhibited, C. McCready, R.C.B., 29/6/72." The present assistant secretary, R.C.B., has been asked to trace the missing original deed.

The older documents, from 1296 to 1533, had been transcribed and translated by me many years ago on behalf of the then rector, Rev. Canon

A. L. Elliott, and the trustees. The present rector, Rev. Hugh W. B. Thompson, B.D., with the other trustees, no less interested than their predecessors in the history and records of this old Dublin parish, have consented to their being brought before the Academy, with a view of adding to the number of ancient parochial instruments that in recent years various workers have printed, which are of great importance and interest in making us better acquainted with the localities and inhabitants of our city in mediaeval days.

St. Catherine's is generally supposed to have been founded about the year 1190, in connexion with the celebrated abbey of St. Thomas the Martyr; but the earliest documentary evidence for its existence is contained in the Chartularies of St. Mary's Abbey, in which it is mentioned in the year 1244. (*See* Gilbert, vol. i, p. 353.) In 1766 the then edifice was rebuilt at a cost of about £9000, of which sum the Irish Parliament contributed £7000. In the chancel of the old building stood a stately monument, erected to the memory of Sir William Brabazon, ancestor of the Earls of Meath, who died in 1552. Sir William was Vice-Treasurer, and on several occasions acted as Lord Justice, of Ireland. This old monument appears to have been taken down, and no trace of it remains.

In the year 1196 King John granted the church of St. James, with the church of St. John the Baptist, Kilmainham, to the abbey of St. Thomas the Martyr; and about the year 1306 their districts were divided, one portion being assigned to the parish of St. Catherine, and the other to that of St. James. In 1545 these parochial districts were again joined together, and became known as the United Parishes of St. Catherine, St. James, and St. John of Kilmainham. In the year 1707 they were once more separated. All the district lying to the west of the city watercourse, which divides Dolphin's Barn from the Earl of Meath's Liberty, and running to the Pipes at St. James's Gate, and on the west side of that gate to the river Liffey, in a straight line over against the Bowling Green House, was to constitute the parish of St. James. St. Catherine's was to include all the residue. The Act of Parliament authorizing the division (6 Anne, cap. 21, s. 13) granted liberty to the rector of St. Catherine's to lease a house in St. Thomas' Street, which had been given under letters patent of King Charles II (1669) to Rev. John Rigby, then incumbent, and his successors, as a residence. This, however, had been found incommodious. It was described as a timber house, slated, with stable and garden, formerly the property of William Plunkett, of Beauly.

The trustees of St. Catherine's parish, in the year 1880, brought an action, which was tried in the Rolls Court, against certain persons for the

recovery of two houses in St. Thomas' Street—one known as the "Blue Boar"; the other at one time occupied by Chief Baron Bysse—which were alleged to be portion of the ancient parish property. The trustees were successful, though from the pleadings and the judgment in the case it would appear that they had not the advantage of having before them the grants dealt with in this paper, which apparently were not in their possession at the time.

The greater number of the houses conveyed in the deeds under notice lay in St. Thomas' Street; others in St. Francis' Street and Cook Street, while three of the documents refer to premises adjoining St. James's churchyard and in St. James's Gate. One is conversant with a house in Bridge Street, and another with five shops situated in the lane leading from the street of Oustmanton to St Mary's Abbey, between Frapper's Lane (now North King Street) and Coccow Lane, known also as Loughlin Lane (now Beresford Street).

As in other instances, the old title-deeds of land and premises which subsequently became parish property, are to be found among the documents. In the present case, deeds are forthcoming which carry the title of land in St. Thomas' Street from 1296 to 1533, while some of the later documents carry it still further, though it be not now possible to identify the particular holdings. William de Venella and Agnes de St. John, his wife, are the earliest known possessors of land which for a considerable period was owned by the trustees of St. Catherine's parish. This they conveyed to Richard, son of Augustine of the Salmon Leap. In 1309 William de Kemeseye, called Glazewright, a worker in glass, obtained the premises, and his family continued in possession until 1409, when Richard Glazewright granted some of his property in Thomas' Street, with premises in Cook Street and Oxmantown, to three chaplains, probably trustees on behalf of the parish. In 1337-8 William Glazewright was juror in an inquisition taken on the death of William Payne, abbot of St. Mary's.[1] In 1381 Joan Douce bequeathed to Richard Glasewryght two shops in St. Thomas' Street, roofed with tiles.[2] In 1434 the chaplains conveyed the above-mentioned property to Maurice Segyn, when Joan Boys, widow of a William Glazewright, released to him any right she might have had in it by way of dower. In the Patent Roll of 10 Henry VI (1431-2) is a grant to Maurice Segyne, smith, Walter Segyne, cordwainer, and John Segyne, of the Irish nation, that they and their issue should be free, and use English laws. In 1470

[1] Gilbert's *Chartularies of St. Mary's Abbey.*

[2] *St. Anne's Gild*, H. F. Berry, *Proceedings R.I.A.*, xxv, Sec. C, p. 21.

Maurice Segyne granted to William Fowler, a chaplain, what the three chaplains had given him, and William Fowler gave said Maurice, and Moline Hyde, his wife, the premises for life, with remainder in tail to their sons David and Walter. No. 14 is an inventory of the goods and probate of the will of this Walter Segyne or Soggyn, merchant, 1495, who had been admitted to the franchise of the city in 1484.[1] He was to be buried in St. James's church, and, among other legacies, the testator bequeathed one to his foster-father, who had nurtured him. Fifteenth-century Dublin wills are few, so that the discovery of one more in this collection is of interest. The family of Soggyn, also called Segyn, appear in the deeds from 1434 in connexion with houses in St. Thomas' Street. In 1508 Moline Segyn, *alias* Hyde, granted the lands above mentioned to Thomas Foster and Robert Cornyng, and the latter's brother, John Curning, chaplain, in 1533 conveyed to Geoffrey Morton the property that his brother Robert had from Moline Segyn. In 1679 a house named the "Rood Stang," which stood near St. James's church, is mentioned. The "Cherry tree," on the north side of the street, appears in 1703, and in 1697 "the Cherry tree" garden belonged to John Allen. The "Talbot" inn in 1743 stood on the south side of the street.

The "Glib" is mentioned as a northern boundary in No. 27, so called, says Dr. C. T. M'Cready, in his *Dublin Street Names*, "from the Glib river, a watercourse constructed in 1670, to convey water through St. Thomas' Street from Coleman's Brook at the head of Dirty Lane to a small cistern at the south end of New Row." "Glib" is supposed to be a corruption of the word "Gleise." This stream ran beside St. Catherine's Church.

Coleman's Brook, or the Black Ditch (No. 31), is mentioned as early as 1406 in a MS. in Trinity College, and in 1479 in a Christ Church Deed, in each of which it formed a southern boundary of certain premises. The stream was an overflow or continuation of the old city watercourse, passing through Dirty Lane down to Mullinahack, and flowing under Bridge Street until it reached the Liffey. (See *The Water Supply of Ancient Dublin*, H. F. Berry, *Journal R.S.A.I.*, vol. xxi, p. 565.) In this deed are mentioned a plot of ground held by William Molyneux, and Christopher Usher's parks. The former, in 1684, was appointed Surveyor of Works in Ireland, and in 1692 he became M.P. for the University of Dublin. Molyneux was a distinguished philosopher and astronomer, and in 1684 he founded the Dublin Philosophical Society (a forerunner of the Royal Dublin Society), of which he acted as Secretary.

[1] Gilbert's *Ancient Records of Dublin*, i, p. 365.

Christopher Ussher, of Bridgefoot, Dublin, born *circa* 1634, son of Sir William Ussher, of Bridgefoot, married Martha, daughter of Thomas Piggot, Master of the Wards in Ireland, and had issue, William Ussher, of Ussher's Quay, and Martha, who married Chief Justice Nehemiah Donnellan. Christopher Ussher died in 1706, and was buried in St. Audoen's.

Some members of the Spranger family, ancestors of Spranger Barry, the tragedian, are named as holding premises in St. Thomas' Street—Henry Spranger having a dwelling, malt-house, &c., on the north side of the street in 1659, and John Spranger in 1690 taking a lease of a tenement, with stable, &c.

In No. 29 it is mentioned that Sir James Barry, Baron of Santry,[1] held property near St. James's Church. His family had been foremost citizens of Dublin for generations, and in 1610 his father was mayor of the city. Sir James Barry was one of the judges for a short time prior to the Commonwealth, when he was removed, but on the Restoration, he was appointed Chief Justice of the Chief Place. Barry was in Lord Strafford's confidence, and he was one of the commissioners for the settlement of Ireland under Charles II. Lord Santry died in 1673, and was interred in Christ Church Cathedral.

Evidence is afforded that certain waste ground and ruinous walls whereon had stood an old house, at the west end of St. Mary's Chapel in St. Catherine's Church, bounded on the south by the highway leading through the churchyard towards Sir Beverley Newcombe's house, were anciently deemed to belong to the ministers or vicars of St. Catherine's.

Among the documents is recited a lease of 1595, which forms portion of the title to one of the houses in question in the Chancery suit of 1880. Under it the premises, formerly belonging to Luke Lowther, were demised to Robert Bysse, subsequently coming to Christopher Bysse, John Bysse, and John, Viscount Molesworth. John Bysse[2] (eldest son of said Christopher), who had been Recorder of Dublin, was appointed Chief Baron of the Exchequer at the Restoration. While Recorder of the city, in 1639, Bysse was Warden of the Religious Gild of St. Anne in St. Audoen's Church.[3] The Chief Baron died in 1680, and was buried in St. Audoen's. He married Margaret, daughter of Chief Justice Lowther; and their daughter, Judith, married Robert, Viscount Molesworth.

In the *Registers of S. Catherine, Dublin*, 1636–1715 (Parish Register Society of Dublin), Rev. John Hodson is given as Rector from 1636. Deed No. 22

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[1] See "Some Notes on the Irish Judiciary." F. E. Ball, *Journal*, Cork H. & A. Soc., 1901, p. 94.

[2] Ball's "Irish Judiciary," Cork *Journal*, 1901, p. 146.

[3] "Gild of St. Anne." *Proceedings* R.I.A., xxv, Sec. C, p. 21.

affords evidence of his having held the post prior to 26 May, 1635. An early clerk or chaplain of St. Catherine's, not hitherto known as such, appears in the person of William Venge, Fyng, or Vyng (as the name is variously spelled), in 1470. He appears as William Veng, clerk, in 1461, in a deed of St. Werburgh's parish.

The following chaplains are named:—

Robert Kemp, 1296.
Hugh de Moling, 1309.
Hugh the Clerk, 1332.
Simon de Christ Church, 1337.
John de Balymor, 1337.
John Mole, 1409.
John Ingoll, 1409.
William Ersdekyn, 1409.
William Fowler, 1470.
Thomas Laundey, 1495.
Sir Nicholas French, 1495.
John Curning, 1533.

John Bysset is named as chaplain of St. Catherine's in 1461, in a deed of St. Werburgh's parish.

Churchwardens of St. Catherine's.

William Phillips and Hugh Roberts, 1659.
Joshua Allen and Thomas Greaves, 1664.
Markes Rainford[1] and Thomas Weate, 1679.
Thomas Hewetson and Edward Massey, 1695.
John Sporle and Henry Fisher, 1697.
Benjamin Mead and Joshua Shippey, 1698.
Robert Cock and Samuel Bennet, 1699.
John Miller and John Nicholson, 1703.

As the district of St. Catherine's was from old times famous for the manufacture of beer, it may be of interest to note that the following brewers are mentioned in the Deeds:—

Daniel Adrian, 1637.
John Pennington, 1654.
William Phillips, 1659.
Arthur Emerson, 1664.
Richard Butler, 1699.

[1] From whose family Rainsford or Rainsford Street was named.

Proctors and Churchwardens of St. James's.

John Rollo and William Bousell, 1526.
James Browne and John Gromley, 1639.

CALENDAR.

No. 1. William de Venella, baker, son of William de Venella, and Agnes, daughter of Henry de St. John, his wife, grant in fee to Richard, son of Augustine of the Salmon Leap (*de saltu salmonum*), their land, with its buildings, &c., in St. Thomas' Street, parish of St. Katherine, Dublin, lying between land belonging to Sarra de Langcastre on the east, and land belonging to [illegible] de Chaddisdene,[1] on the west, containing 35 feet in front and as many behind; and extending in length 151 feet from the king's highway on the south up to the land of said Richard on the north. Yearly rent, one penny silver, to be paid to the heirs of John de Brakeleye, and to the grantors a rose at the Nativity of St. John the Baptist. Witnesses, Robert de Wylby, mayor of Dublin, Thomas Colyce and Nicholas the clerk, bailiffs, Henry de Mareschall, Roger de Castroknoc, Robert de Assebourne, Roger de Assebourne, Robert le Mareshall, William Finaer, Osbert de Bredon, Henry de Mora, John Curteys, Adam Sweetman, Robert Kemp, clerk. Dated at Dublin the 7th day of July, 24 King Edward (1296). [Seal.]

[Original greatly decayed, calendared from copy.]

No. 2. Thomas Slane, citizen of Dublin, grants in fee to William de Kemeseye, glass worker[2] (*vitreario*), a tenement with its buildings in St. Thomas' Street, in the parish of St. Katherine, suburb of Dublin, lying between land formerly belonging to Sarra de Langcastre on the east, and land of Thomas de Castrocnoks on the west, containing in front and behind 35 feet, and extending in length from the king's highway on the south up to the land formerly belonging to Richard of the Salmon Leap 151 feet. Witnesses, John le Decer, mayor of Dublin, John de Castrocnoks, and John Hoet [Bowet], bailiffs, Robert de Wileby, John le Seriaunt, William le Seriaunt, Hugh de Carleton, William le Bokeler, John Sampson, Hugh de Castrocnoks, Thomas de Castrocnoks, Adam Lyteharim, Stephen le Curteys, Hugh de Moling, clerk. Dublin, Monday on the Morrow of Pentecost, 2 King Edward, son of King Edward, 19 May, 1309. Inrolled in Domesday.[3]

[Original much decayed, calendared from copy.]

[1] Hugh de Chaddestone was archdeacon of Glendaloch in 1267.

[2] His messuage in Oxmantown is mentioned in a Ch. Ch. Deed of 1319, and land formerly his property in one of 1424.

[3] A record of the Corporation wherein deeds affecting land in the city were bound to be entered.

No. 3. (From copy—original missing since 1872).

William Prodome, son and heir of William Prodome, formerly citizen of Dublin, grants in fee to William the glazewright, a piece of ground with the appurtenances in St. Thomas' Street, parish of St. Katherine, suburb of Dublin, lying between land of Hugh de Castrocnoks on the east, and land of said William on the west, in breadth; and extending in length from the king's highway on the south as far as the land of St. John's House[1] on the north. Witnesses, Richard Lagheles, mayor of Dublin, William le Seriaunt, and Hugh Silvester, bailiffs, John le Decer, Hugh de Carleton, John de Castrocnocks, Geoffrey le Decere, Adam Lyteharim. Dublin, Tuesday next after the Feast of the Nativity of St. John the Baptist, 5 King Edward, son of King Edward (29 June, 1312).

No. 4. Thomas Collane and Agnes le Blake his wife, release to William the glazewright, citizen of Dublin, a piece of land pertaining to said Agnes by way of dower, by the death of William le Blake, her late husband, lying in St. Thomas' Street, parish of St. Katherine, suburb of Dublin, in breadth between land that said William had of the gift and feoffment of William Prodome, cutler (*allutar*), on the east and land of said William the glazewright on the west, extending in length from said street on the south to land of said William the glazewright on the north. Dublin, Tuesday, in the Feast of St. Mary Magdalene, 14 King Edward, son of King Edward (22 July, 1320).

No. 5. Agnes Blake releases to William de Kemeseye, glazewright, citizen of Dublin, her right by way of dower in land with its buildings in St. Thomas' Street, parish of St. Katherine, suburb of Dublin, lying in breadth between land of said William on the east and land of Roger fitzElys on the west; and extending in length from the king's street on the south up to land of said Roger to the north, and land of St. John's House without the New Gate, Dublin. Witnesses, John de Moenes, mayor of Dublin, John de Callan, William le Waleis, bailiffs, William le Mareschal, Walter de Castelcnok, Thomas Cornewaleys, Roger fitzElys, Hugh the clerk. Dublin, 24 February, 6 King Edward III (1332).

No. 6 Edena, formerly wife of William Prodome, releases to William de Kemeseye, glazewright, her right in a third part of the land with its buildings in St. Thomas' Street parish of St. Katherine the Virgin, suburb of Dublin, lying in breadth between land of said William on the west and land of

[1] The priory of St. John the Baptist was situate in Thomas' Street outside the west or New Gate of the city.

Thomas de Cornewalys on the east; and extending in length from the king's highway in front up to land of St. John's House without the New Gate, Dublin, behind to the north. Witnesses, Walter de Combe, Roger Elys, Simon de Cristys church,[1] Geoffrey Curteys, John de Balymor.[2] Dublin, Wednesday next after the Feast of the Purification of the B.V.M., 11 King Edward III (5 Feb. 1337).

No. 7. Richard the glazewright, Dublin, grants in fee to John Mole, chaplain, John Ingoll chaplain, and William Ersdekyn, chaplain,[3] a messuage in the street of St. Thomas the Martyr, parish of St. Katherine, suburb of Dublin, lying between land of Roger Elys, to the west, and land formerly belonging to John Cornewalshe, on the east, and extending in length from the king's highway on the south up to land of said Roger to the north; and four shops with their solars (upper storeys), together with a porch, lying in Cooks' street, parish of St. Audoen, in length from the stone house now belonging to Luke Douedals to the west up to the stone house with a watery cellar on the east, and in breadth from said street on the north to land formerly belonging to Roger Bekeford on the south; also five shops in the lane leading from the street of Oustmanton to the monastery of the B.V.M., and lying between the lane called Frapesawse lane on the west to the lane called Coccow lane on the east, and lying in length from said lane leading to said monastery to the north up to land formerly belonging to Nicholas Scurlagge and land of Geoffrey Gallane on the south.

Because his seal is unknown to many, the Seal of the Provostship of the city of Dublin is affixed 27 January, 10 King Henry IV (1409).

[Original much decayed.]

No. 8. John Mole, chaplain, John Ingoll, chaplain, and William Ersdekyn, chaplain, grant in fee to Maurice Segyn, a messuage in St. Thomas' Street, parish of St. Katherine, suburb of Dublin, lying between the land of Roger Elys on the west, and land formerly belonging to John Cornewalshe on the east, and extending in length from the king's highway on the south up to land of said Roger on the north, which they had of the gift and feoffment of Richard the glazewright, citizen of Dublin, 11 March, 12 King Henry VI (1434).

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[1] Probably Simon de Ludegate, prior, 1343. See *Account Roll, Holy Trinity*, ed. Jas. Mills.

[2] Deputy of Alexander, Archbishop of Dublin, *circ.* 1324; collector of the Tenth imposed by Pope John XXII.

[3] These chaplains are mentioned in Christ Church Deeds.

No. 9. Release, same to same, premises in No. 8, 13 March, 12 King Henry VI (1434). One seal, of three original ones, remains.

No. 10. Joan Boys, formerly wife of William the glazewright, releases to Maurice Segyn her right in premises in No. 8. 15 March, 12 Henry VI (1434).

No. 11. Maurice Segyn, smith, grants in fee to William Fowler, chaplain, premises in No 8, which he had of the gift and feoffment of John Mole, John Ingoll, and William Ersdekyn, chaplains.

20 May, 10 King Edward IV (1470).

Witnesses, William Venge, clerk; William Stanton, Richard Gavane, Philip Herford, Walter Braynoke, John Herford.[1]

[Much of this illegible.]

No. 12. William Fowler, chaplain, grants to Maurice Segyn, smith, citizen of Dublin, and Moline, his wife, premises in No. 8, which he had of the gift and feoffment of said Maurice, for the life of the said Maurice and Moline, and after their death, the western moiety to remain to David Segyne,[2] son of said Maurice, and the heirs male of his body; failing such, to Walter Segyne, son of said Maurice and brother of David, and the heirs male of his body. The eastern moiety to remain to said Walter Segyne and the heirs male of his body; failing such, to said David Segyne and the heirs male of his body. Should said David and Walter die without heirs male, then said messuage to be sold, and the purchase-money to be divided among the priests and poor, for the souls of all the faithful departed.

20 June, 10 King Edward IV (1470). [Seal.]

No. 13. William Fowler, chaplain, makes Nicholas Bellewe, clerk, his attorney to deliver seisin of above-named premises to Maurice Segyn and wife. 20 June, 10 King Edward IV (1470). Same witnesses as in No. 11.

No. 14. Inventory of the goods of Walter Soggyn, merchant, Dublin, made 7 September, 1495.

Ready money, 13*l.* 5*s.* 4*d.*; in merchandise in his shop, 35*l.* 18*s.*; two chains (*murenas*), six spoons, and a goblet weighing 18 oz., worth 3*l.*; four bows, worth 16*s.*; a horse and a cow, worth 13*s.* 4d.; a gold ring in pledge, 10*s.*; a spoon in pledge, worth 2*s.* 8*d.*; household goods, 4*l.* Sum, 58*l.* 5*s.* 10*d.*

[1] Canon of St. Thomas's; Prior in 1468. See Register of Wills, &c., 1457-1483, p. 177, ed. H. F. Berry.

[2] David Segyn, smith, was admitted to the franchise in 1484 (Gilbert, i, 365).

Debts due to him amount to 10*l.* 6*s.* Clear sum, 55*l.* 17*s.* Sum of the Debts that he owes, 12*l.* 9*s.* 4*d.* Portion of the deceased, 18*l.* 12*s.* 4*d.*

Will of Walter Soggyn.—To be buried in the church of St. James without the city; 4*l.* for wax, bread, wine, ale, &c., and alms to the poor, for his funeral; for repair of said church, 6*s.* 8*d.*; for repair of St. Michael's Church, 3*s.* 4*d.*; to Sir Thomas Lawnndy,[1] for tithes, 13*s.* 4*d.*; to Sir Nicholas French, 3*s.* 4*d.*; Philip Whyt, 20*s.*; John Herford, 20*s.*; Walter, testator's servant, 10*s.*; testator's foster-father (*alumpno*), who nurtured him, 5*s.*; Cicily, 5*s.* Residue to Jenet, his wife, and Molyne Hyde, his mother, whom he appoints executrices: John Godyn to be overseer.

Proved before Geoffrey Fich, principal official of the Court of Dublin, 12 September, 1495.

[From copy—original not forthcoming.]

No. 15. Grant in fee from Moline Hyde in her widowhood, to Thomas Foster and Robert Cornynge, citizens of Dublin, of premises in No. 8, &c., which she had of the gift and feoffment of William Fowler, chaplain.

20 January, 23 King Henry VII (1508).

[Original not forthcoming: calendared from copy.]

No. 16. Moline Hyde releases to same all her right in the premises in No. 15. 20 January, 1508.

No. 17. Moline Hyde makes James Harrole her attorney to deliver seisin of the preceding to Thomas Foster and Robert Cornyng. 23 January, 1508.

No. 18. Indenture of 29 September, 18 King Henry VIII (1526), whereby Jenete Woder, Dublin, widow, John Plunket, of Crokelle, gent., and Richard Barnwall, Dublin, gent., lease to William Bathe, Dublin, yeoman, a messuage with a garden in St. Thomas' St., parish of St. James, Dublin, for 41 years, at a rent of six shillings yearly. [2 seals.]

No. 19. John Rollo and William Bousell, proctors of St. James's church, Dublin, lease to Geoffrey Morton and Katherine Dowlyng, his wife, a garden lying in the parish of St. James, for their lives. Rent 6*s.* yearly. 29 September, 18 King Henry VIII (1526).

[Original not forthcoming: calendared from copy.]

No. 20. John Curning, chaplain, makes John Burnell, gent., Thomas Cusake, gent., William fitz William, gent., Thomas Talbot, gent., John Bathe,

[1] Chaplain, connected with Holy Trinity; trustee and agent for it in many transactions; frequently mentioned in Ch. Ch. Deeds.

son of William Bathe, late of Dublin, gent., and William Freman, his attorneys to deliver seisin to Geoffrey Morton, of Dublin, yeoman, and Patrick Barret, of same, yeoman, of a messuage in the street of St. Thomas the martyr, parish of St. Katherine, Dublin (as in No. 8), which his brother Robert had of the gift and feoffment of Molyng Hyde, late of Dublin, widow. 20 January, 24 King Henry VIII (1533).

No. 21. The names of those in St. James's parish, viz. John Kaye, Nicholas Wuylsy, Richard Bousell, Thomas Sheressy, Thomas Laules, Thomas Awsten, William Stanton, [who leased to] William Vyng, clerk to St. Katherine, ground between our Lady's ground and that of Sir Nicholas Woyder,[1] for 60 years. He gave 60*s.* in their need. William Thysorchy was in great need. Every year the proctors are to [receive] from Wm. Vyng or his assigns [ ] during the term. *Circ.* 1470, when William Vyng was clerk or chaplain. See No. 12. (As to the name Thysorchy, *Thy* is used throughout for *the*, so that "sorchy" may be descriptive.

Manuscript book, p. 12 *f.*

An account of Leases belonging to St. Katherine's parish, and also St. James's.

No. 22. Lease, 26 May, 1635, William, lord Brabazon, Earl of Meath, patron of St. Katherine's church near Dublin, and John Hudson, vicar of same, to James Browne, Dublin, bricklayer, of waste and ruinous walls with ground whereon anciently stood an old house, at the west end of St. Mary's chapel in said church, 24 feet in length, 15 feet in breadth; bounded on the east to St. Mary's chapel or end of said church; on the west by a tenement then in possession of John Beckett; on the north by the lower part of the body of said St. Katherine's; and on the south by the highway leading through said churchyard towards Sir Beverley Nucom's house, which waste ground and ruinous walls were anciently deemed to belong to the ministers or vicars of said church of St. Katherine, the virgin; to hold for 31 years from the Annunciation B.V.M. last past. Rent 20*s.* yearly, and a couple of good and well fatted capons at Christmas yearly, or 5*s.* in lieu thereof.

By an endorsement of 6 Novr. 1637, in consideration of 40*l.* said James Browne assigned his right in said lease to Daniel Adrian, St. Thomas' St., brewer.

No. 23 (p. 12*d.*). Lease, 1 April, 1639, John Hodson, minister and preacher of God's word in St. James's, near Dublin, James Browne and

[1] Sir Nicholas Woder, in 1473, lived in High Street. In 1453 he was mayor of the city.

John Gromley, churchwardens, to William Rellicke, Dublin, tanner, of a piece of ground in St. James's parish, 40 feet in length, 16 feet in breadth; abutting on the east to the house of Bryan McGrosse, on the west to Davie Murphew, on the north to the churchyard of St. James's, and on the south to the king's highway leading from St. James's Gate to Kilmainham: to hold for 31 years from Easter next. Rent 20*s.* yearly.

No. 24 (p. 13 f.). Lease, 7 April, 1659, William Phillips, Dublin, beer brewer, and Hugh Roberts, Dublin, gent., churchwardens of St. Katherine and St. James in the suburbs of Dublin, to Michael Harrison, Lisnegarvy, Co. Antrim, Esq., of a dwelling house, malt house and garden, on the north side of St. Thomas' Street, then in possession of Henry Spranger, to hold for 61 years from Michaelmas last. Rent 30*s.* yearly, besides all taxes.

(*In margin*) "One of Mr. Powell's houses, J. S."

No. 25 (p. 13 d.). Lease, 7 April, 1659, same lessors to Richard Francis, Dublin, gent., of a dwelling house and garden on the north side of St. Thomas' Street in possession of Anthony Sympson, for 61 years from 5 April, at a rent of 50*s.* yearly over and above all taxes; in trust for the use of Mathew Browne, an infant, son of Mathew Browne, late of Dublin, gent., deceased.

No. 26 (p. 14 d.). Lease, 14 December, 1664, Jossua Allen, Esq., one of the sheriffs of the city of Dublin, and Thomas Greaves, Dublin, clothier, churchwardens of St. Katherine and St. James, to Arthur Emerson, Dublin, brewer, of a low cellar or vault under the steeple or bellhouse of St. Katherine's Church, near St. Thomas' Court, Dublin, with a passage through said cellar or vault to said Emerson's dwelling house: to hold for 21 years from Michaelmas last. Rent 20*s.* yearly.

No. 27 (p. 14 d.). Lease, 18 April, 1679, Thomas Chambers, minister of the united parish churches of St. Katherine and St James, Dublin, Markes Ranford, of St. Thomas' Street, within the suburbs of said city, saddler, and Thomas Weate, of same, baker, churchwardens, to Jane Wallis, relict and administratrix of Ralph Wallis, of said city, Esq., deceased, of a dwelling house, malt house and other out houses on the Glib in St. Thomas' Street, parish of St. Katherine, in her possession; bounded on the east by Cow lane[1]; on the south by the Earl of Meath's land; on the west by the

[1] Also called Molyneux Yard, from John Molyneux, an ironmonger, who died in 1736, and was succeeded in the house, mentioned in deed No. 27 (55 Thomas' Street), by Patrick and Martin Bean, ironmongers. In 1778 it was occupied by Patk. Bean or Beanes.

Earl of Meath's orchard and Tobias Cramer's holding, then in possession of Captain William Billington, and on the north to the Glib. To hold for 99 years from Easter next. Rent 3*l.* yearly.

(*In margin*) "Glib river. This is Beane's holding."

No. 28 p. 15 d.). Lease, 18 April, 1679. Same grantors as in No. 27, to Luke Lowther, Dublin, alderman, of a dwelling house, newly erected, a malt house and garden, with a brew house and several other out houses, being formerly a waste plot of ground, situate in St. Francis' Street, Dublin: in breadth from north to south, 58 feet; in length from east to west, 140 feet; bounded on the east to the pavement of St. Francis' Street, west to Alderman Bennett's land, south to the lands of Nicholas Roebuck, butcher, deceased, north to land of James Duffe, merchant, deceased, late in the holding of Patrick Halgan, butcher: to hold for 99 years from Easter next. Rent 40s. yearly, above all taxes.

No. 29 p. 16 f.). Lease, 5 June, 1679. Mark Ransford, saddler, and Thomas Weaite, baker, churchwardens of the several parish churches of St. Katherine and St. James, in the suburbs of Dublin, to John Topham, Doctor of Laws, one of the Masters of the High Court of Chancery in Ireland (reciting that Christopher Bennet and John Corkey, churchwardens, by indenture of 15 June, 1654, had leased to John Pennington, brewer, deceased, a waste plot of ground situate without St. James's gate, Dublin, near the parish church of St. James, bounded on the east, west, and north by land then belonging to Sir James Barry, knight, and at the perfection of the lease to the Lord Baron of Santry, and on the south to the highway; on which waste piece two houses or tenements stood, one in the tenure of Morgan Rowny, yeoman, deceased, called or known by the name of the "Rood Stang"; the other, with a garden, which said John Pennington then inhabited; which garden bounds to the churchyard of St. James' on the north side all along with said churchyard southward; also a small spot of ground near said waste piece, and said churchyard, formerly in possession of William Rellicke, tanner, deceased. To hold for 61 years from Michaelmas next, at a yearly rent of 20s.; on which piece of ground said John Pennington had lately built three dwelling houses, two of which were in the tenure of Arthur Neale, gent., and the other in that of Thomas Rigby, clerk, deceased; also three small tenements adjoining to said churchyard, in the tenure of Mathew Barry, Esq.) Said terms of years are now vested in said John Topham, and said churchwardens lease to him all the above recited houses and tenements, &c., for 99 years, at a yearly rent of 20s.

(*In margin*) Infirmary.

No. 30 (p. 17 f.). Lease, 13 August, 1695. Thomas Chambers, clerk, Thomas Hewetson and Edward Massey, churchwardens of St. Katherine and St. James, Dublin, to Mark Ransford, Dublin, alderman, of two small plots of ground adjoining St. James' churchyard, with nine small dwelling houses thereon, one of said plots being at the east of the gate entering into said churchyard; in length 27 yards, and in breadth 5 yards; the other plot being at the west side of said gate, in length 25 yards and in breadth 5 yards. To hold for 99 years from Easter preceding. Rent 20*s.*

No. 31 (p. 17 d.). Lease, 2 July, 1697, Samuel Synge, vicar and "proprietor" of the united parishes of St. Katherine and St. James, John Sporle and Henry Fisher, churchwardens, to John Allen, Dublin, of a piece or plot of waste ground lately held under them by John Cliffe, Dublin, merchant, bounded on the east to a small plot of ground now held by Wm. Molyneux, Esq., from said parish churches; on the north to the parks of Christopher Usher, Esq., on the west to the highway leading to the broken bridge commonly called Ellis's Bridge, and on the south to a piece of land now in the possession of Sir Robert Newcomen, and to the land of the said John Allen called the Cherry tree garden, lately in possession of Thomas Aston, gardener, deceased, To hold for 99 years at the rent of 5*s.* yearly.

(*In margin*) Black Ditch or Coleman's Brook in 1702.

No. 32 (p. 18 f.). Lease, 2 July, 1697. Samuel Synge, vicar, John Sporle, and Henry Fisher, churchwardens, to John Cliffe, Dublin, merchant, of three messuages or tenements lately held under them by Michael Chamberlain, Esq., situate in Bridge Street, then in possession of said John Cliffe and his undertenants, Peter Trop, Michael Hall, and Thomas Murphy, bounded on the east by James Clark's holding, on the north by the late holding of James Cleere, on the west by the pavement, and on the south by the late holding of Simon Carrick, in as ample manner as Wardner Westenrea, merchant, formerly held same. To hold for 61 years. Rent 5*l.* yearly.

No. 33 (p. 18 d.). Lease, 20 October, 1698. Rev. Dean Samuel Synge, vicar, Benjamin Mead, and Joshua Shippey, churchwardens, to Anne Aston, St. Thomas' Street, widow, of a dwelling-house, malt-house, &c., on the north side of St. Thomas' Street, then in her possession; for 82 years. Rent 2*l.* yearly.

No. 34 (p. 19 f.). Lease, 13 May, 1699. Dr. Samuel Synge, vicar, Robert Cock and Samuel Bennet, churchwardens, to John Spranger, Dublin, Esq., of a messuage or tenement with stable, &c., in St. Thomas' Street, Dublin, wherein

Richard Butler, brewer, then dwelt, in length from the street on the south 55 yards, standard, and 7½ yards in breadth to Robert Molesworth's land on the east, to John Rossiter's holding on the west, which belongs to the parish churches, on the street on the south to a parcel of land called Harbert's land on the north, for 99 years. Rent 40*s.* stg.

No. 35 (p. 19 f.) Lease, 1 Feb., 1703. Rev. Samuel Synge, Dean of Kildare, vicar; John Miller, Dublin, silk throster, and John Nicholson, Dublin, dyer, churchwardens, to James Young, Dublin, gent. of a house or tenement on the north side of St. Thomas' Street, Dublin, bounding on the west to the house commonly called the "Cherry Tree," formerly the property of Herbert; on the east to John Spranger's house, wherein Richard Butler then lived; on the north to Jordan's yard; on the south to the street; containing in front to the street 24 feet, and in length from front to rear 160 feet—for 99 years from the expiration of a lease made to one Bennett, which by mesne conveyances is now vested in one Richard Jacob, Dublin, baker, whereof 14 years were unexpired. Rent 20*s.* yearly.

No. 36 (p. 23 f.). Memorial of a deed of assignment, 19 March, 1725. Hon. Thomas Coote, Dublin, and Arthur Newcomen, of Chester, counsellor-at-law [illegible] Dublin, barrister, reciting that Robert Baggott[1] by lease of 13 May, 1595, demised to Robert Bysse a house or tenement, situate in St. Thomas' Street, Dublin, formerly in possession of Luke Lowther, in breadth abutting on the west from Dowdal's land to the land of St. Mary's Abbey on the east; and in length from St. Catherine's Church land on the south to the pavement of St. Thomas' Street aforesaid, on the north; in breadth in the street from east to west, 15 feet, and in length from north to south, 101 feet, for 99 years. And afterwards, said Robert Baggott by lease of 1 March, 1605, demised same to Christopher Bysse for 99 years, to commence from the determination of the former lease: Rent 15*s.* payable to St. Catherine's Church; the interest in which lease came to John Bysse, as executor to said Chr. Bysse, and since became legally vested in Robert, late Lord Viscount Molesworth,

[1] The following is the inscription on his tombstone in St. Catherine's Churchyard, Dublin:—

+

I.H.S.

"Here under lieth the corps of Robart Bagot of Drogheda, Marchant, survivine feeoffi of Sainte Katherine's Church, who deceased the 14 Februari, 1613, and his wife, Eleanor Bathe, deceased the 5 of November, 1616, whose souls the Lord have mercy upon. Amen."

The stone is 3 feet 2 inches by 3 feet.

deceased, as executor to said John Bysse. Also reciting that said Thomas Coote and Arthur Newcomen, being empowered by Lord Molesworth's will to sell said lease and premises, agreed with said John Brady to assign same to him for £430), assign said lease to John Brady for the remainder of said term of 99 years. Rent 15*s.* Irish, payable to St. Catherine's Church. Witnesses to execution by John Brady and Thos. Coote; Robert Adair, Dublin, Esq.; William Starkey, Breckdenstown, Co. Dublin, gent; and William Barry, Dublin, servant. Witnesses to execution by Arthur Newcomen, Wm. Starkey, Thomas Hitching, Chester, servant to A. Newcomen.

Affidavit as to execution of memorial, &c., sworn 10 May, 1726.

No. 37 (p. 22 f.). Copy memorial of a deed-poll or lease of 4 June, 1743. Henry Echlin, vicar of St. Katherine's, Dublin, to Chambré Echlin, his son (in consideration of natural affection and 5*s.*) of a house known by the name of the Talbot Inn, situate on the south side of St. Thomas' Street, Dublin, "provided the laws of this realm empowered lessor to make such lease." Rent 5*s.* Lessor further granted all rent and arrears of rent due to him as vicar of said parish. Witnesses: Rev Philip Gayer, Darathee, near Lisburn, Co. Antrim, and Chaworth Echlin, Baldremond, Co. Dublin, gent.

Affidavit as to execution of the memorial sworn by Chaworth Echlin, 8 October, 1756.

VIII.

SOME ANCIENT DEEDS OF THE PARISH OF ST. WERBURGH, DUBLIN.

1243–1676.

By HENRY F. TWISS, I.S.O., Litt.D.

Read February 24. Published May 16, 1919.

Prior to the Anglo-Norman Conquest, the parish so long known as St. Werburgh's had been dedicated to St. Martin of Tours, a near relative of St. Patrick; and St. Martin's Church stood further south and nearer the Polegate that led from Werburgh Street to Bride Street than the edifice which succeeded it. Soon after the conquest, the Church of St. Werburgh was founded by colonists from Bristol, who dedicated it to St. Werburga, a Saxon princess, daughter of one of the Kings of Mercia. Another church in her honour was built in Bristol, which is now one of the oldest in that city. St. Werburga was buried in Chester, and colonists from Cheshire who became residents in Dublin naturally regarded her church here as worthy of their veneration and support. The earliest building is believed to have been destroyed by fire in 1301. Three chapels—those of St. Mary, St. Martin, and St. Catherine—were contained within the pre-Reformation church of the parish. In 1607 the church was rebuilt or repaired; in 1662 it was enlarged; and in 1719 the then existing structure was pulled down and rebuilt, as appears from the records of the parish. For nearly three centuries St. Werburgh's has been regarded as the parish church of Dublin Castle.

Some years ago the deeds here calendared were deposited in the Public Record Office. They are conversant with property in the following streets:—St. Werburgh's Street, Castle Street, and Skinners' Row. Those relating to St. Werburgh's Street commence in 1273, and in them are many references to the churchyard, the charnel-house, a rivulet that appears to have run by the cemetery, an orchard and grove that stood near, and several chambers that formed portion of the parish property. In 1461–2 there were legal proceedings in regard to some premises claimed by a chaplain, but they were decreed to be the property of the church. In 1482 a large stone house, with cellars and garden adjoining the south wall of the city by the Polegate, was

dealt with; it was bequeathed to the church for the purpose of providing a priest for our Lady's Altar, to pray for the souls of members of the Boxseworth[1] and Plunkett families. A couple of chambers over the churchyard-door were also leased by the churchwardens.

The watch-house in which during the seventeenth century the city main guard was stationed was parish property, and portion of the building was subsequently incorporated in St. Werburgh's schoolhouse. The parish owned a chamber over the passage leading from the street to the churchyard on the north, and another was leased in 1547 to Nicholas Stanyhurst.[2] Certain orchards near Sir James Ware's house were also let. Among the proprietors and tenants mentioned in this street were William de Bristoll,[3] 1273; William le Schereman, William de Kildare, Hugh de Calce[4] (Chancellor of St. Patrick's), Nicholas Ardoun,[5] Thomas Sutton, Thomas Fannyn,[6] Geoffrey Calfe,[6] Sir Thomas Laundey[7] and Sir Ellis Feld, chaplains; Robert Bee,[8] goldsmith; Walter Locke, Ralph Leventhorpe.[9]

In Castle Street, the proctors owned Foyle's[10] grove or orchard, which lay on the south side of the street. The family were fisherfolk, whose booths were in Fishamble Street, close by, and their house stood close to St. Werburgh's churchyard; they are frequently mentioned in connexion with a family of Jonet[11] or Jennet, also fishermen. In addition, the proctors owned St. Martin's Lane, with houses in it. The principal property on the north side of the street was Corryngham's Inns, the town mansion of the family of that name from the end of the fourteenth century up to 1479, when it seems to have passed to the church. In course of time the name became corrupted into Corrigan's Inns, and as such there are title-deeds to it extending from 1479 to 1675, when it was known by the sign of the "Castle," being then

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[1] In 1370 William Boseworth owned a tenement in Castle Street (*Chart. St. Mary's*, i, 16): in 1459 John Boseworte was Serjeant of the Bailiffs, Dublin city.

[2] Mayor of Dublin, 1542.

[3] Mayor of Dublin, 1271, and subsequently.

[4] He was for seventeen years deputy in this country of Raymond Pelegrini, Nuncio of the Pope. De Calce was murdered in 1347.

[5] As Nicholas Hardon he had a grant of a place in St. Werburgh's parish in 1390, which in 1411 he conveyed to Thomas Fanying and Margaret his wife.

[6] Frequently mentioned in Christ Church Deeds.

[7] Trustee and agent for Holy Trinity; frequently mentioned in Christ Church Deeds.

[8] Freeman of the city in 1578.

[9] M.P. for Ennis, 1639. Leventhorpe's Alley was later named Gun Alley.

[10] Among Christ Church Deeds are wills of William Foyle, 1348, and John Foyle, 1380, in which mention is made of St. Werburgh's Church. In 1474 Thomas Foile was admitted to the franchise of Dublin as a free fisher.

[11] Robert Foyll in 1454 leased to John Jonet "fyssher" a messuage in Castle Street, and another with the orchard belonging thereto. (Ch. Ch. Deed, No. 957.)

leased to Chief Baron John Bysse. Some old-time tenants in Castle Street were Henry Fitz Rowe, Dame Jenet Sueteriy, Thomas Galmole *alias* Archbold, George Scurligge, John Waffyr, Henry Cheshire, goldsmith, and Stephen Ussher. Some of the documents, which commence in 1373, deal with the house next Corryngham's Inns: among the tenants named were John White, clerk, Robert de Loundres, John Passavaunt, John de la Ryver, and John Herdman.

In Skinners' Row the parish possessed a messuage which extended from that street on the north to Sutors' or Shoemakers' Street on the south; in 1346 it was released by Thomas Fancourt to Stephen Spark, chaplain, subsequently passing into possession of Philip Hendyrgane, Thomas Clane, Nicholas Priour, goldsmith, and Walter Molghane.

The records of St. Werburgh's parish deposited in the Public Record Office include a Testament of Margaret Drewry, of St. Nicholas's parish, 1511; a grant by the Abbey *De Voto Sancte* (Baltinglass) of lands and a mill, Nowtrouse, alias Ballynure, etc., 1412–14; a document of 1463 as to lands in Elton &c., by Laurence Shytagh, and as to his marriage; a plenary absolution, 1477, William Harrold and wife; and a document as to Indulgences in St. Werburgh's, 1517. These are more particularly described in a paper on "Ancient Deeds of St. Werburgh," by H. F. Berry (*Journal, R.S.A.I.*, xlv, p. 32, 1915).

CALENDAR.

St. Werburgh's Street.

No. 1. Agnes, who was wife of William le Schereman, Roger de Kyldare and Thomas Fraunk, executors of the deed which recites that said William, a citizen of Dublin, made them executors of his will. The will set forth that he had acquired his messuage in the parish of St. Werburgh, Dublin, in which he lived, from Adriana Hoth, etc., this he left to said Agnes for life, to be sold after her death, and the proceeds to be distributed in charity. Fearing the danger of delay, and for the more speedy help of his soul, with licence and counsel of Master John le Marshal, official of the court of Dublin, and also of the mayor [illegible] executors have sold same to William, son of Roger de Kildare, for ever.

To give the deed authority, the seal of said official is attached. Witnesses, Robert le N[illegible] [illegible], Robert le Wodeward, and Robert Burnel, bailiffs, Robert [illegible] Eyton, N[illegible] Eyton, Giles de Wileby [illegible] son of Stephen de Wileby, James de Wileby, Nich. Giffard, common clerk. Dublin, Thursday next before the feast of [torn], 11 Edward, son of King Edward. [3 seals.]

(Deed dates between 29 September, 1317, and 7 July, 1318.)

No. 2. William de Bristoll and Juliana his wife, daughter of Elias Burel, grant to William Bonuir, citizen of Dublin, land, with buildings, &c., within the walls of Dublin, in the parish of St. Werburgh, between the church of St. Werburgh and land which was Ellen Pollard's; in breadth in front 24 feet, and in length from the street to the land of Thomas Burel: to hold for ever from the heirs of said Juliana. Rent, a pair of white gloves or one penny silver at Pentecost; and to St. Werburgh's church a half mark of silver at Michaelmas and Easter.

Witnesses, John Garget, mayor, Walter Unred and Master Nicholas de Beverley, provosts, Richd. Olaf, Thomas de Wynton, Thomas Burel, William de Northampton, Hugh Cyssore, Alexander de Ultonia, Robert Turbot, Reginald de Kylmainen, Henry Pyctore, Geoffrey Pictore, William de Donington, clk.

Cir, 1273-4.

No. 3. William Brown and Sidania, his wife, grant to Master Hugh de Calce, chancellor of St. Patrick's church, Dublin, a messuage in the street and parish of St. Werburgh, Dublin, within the walls; in length from the highway on the west to the land of Robert North on the east; in breadth from the tenement of John de la Felde on the south to the tenement of William son of Richard de Swerdes on the north, for ever.

Witnesses, John Seriaunt, mayor, John Creks and Walter de Castroknoc, bailiffs, John Cradok, Geoffrey Cromp, John de Moenes, William le Mareschall, William Douce, Roger Grauntcourt, Master Rich. de London, Thomas Faucon, Roger Kyldare.

Dublin, Wednesday next after the feast of St. Katherine the Virgin, 16 Edward III., 25 November, 1342.

No. 4. The grantors in No. 3 release to Hugh de Calce, chancellor of St. Patrick's, the premises therein named which he has of their feoffment. Dublin, Thursday next after the feast of St. Katherine the Virgin. 16 Edward III., 25 November, 1342. [Seal.]

No. 5. William Broun and Sidania, his wife, grant to Hugh de Calce, clerk, a messuage, &c., in St. Werburgh's street and parish (as in No. 3), for ever.

Witnesses, Geoffrey Crompe, mayor, William Walsche, Walter Lusk, bailiffs, John Seriaunt, William Mareschall, Roger Grauntcourt, Robert Wodefoule, Thomas Faucon, Maurice Smyth.

Saturday next before the feast of St. Dionisius the Martyr, 21 Edward III., 9 October, 1347. (*In dorso*) "Werb. St. E."

No. 6. William Broun and Sidania, his wife, made John de Bo[den]ham

their attorney, to place Hugh de Calce, clerk, in seisin of premises in Nos. 3 and 4. Same date as No. 5.

No. 7. John de Calce grants to Sir Robert Gowys, priest, and John de Carletone, clerk, a messuage in the street and parish of St. Werburgh the Virgin lying in breadth between the messuage formerly Richard de Swerdes' on the north, and the messuage formerly Robert Flod's, on the south, to hold for ever.

Witnesses, Kenewrik Scherenian, mayor, John Dart, John Callan, bailiffs, John Taillour, Peter Woder, Robert Moenes, Thomas Sutton.

Dublin, Friday after the Nativity of St. Mary, 23 Edward III., 8 September, 1349.

No. 8. Release, same parties and premises. Same witnesses and date. [Seal.]

No. 9. John de Calce grants to Thomas de Sutton, citizen of Dublin, a messuage (as in No. 7) for ever.

Witnesses, John Seriaunt, mayor, John Dert, John Bek, bailiffs, Kenwrik Sherman, Robert de Moenes, John Callan, John Taillour, Thomas Faucon, Walter Hawardyn, clerk.

Dublin, Saturday after the feast of St. Luke the Evangelist, 23 Edward III., 18 October, 1349. [Seal.]

No. 10. John de Calce releases and quits claim to Thomas Sutton (as in Nos. 7–9).

Witnesses: John Seriant, mayor, John Dert, John Bek, bailiffs, Robert de Moenes, John Taillour, Thomas Faucon, William Hawardyn, clerk.

Dublin, Thursday next before the feast of all Saints. 23 Edward I., 1 Nov. 1349.

No. 11. Stephen Deicestre (or Dexcestre), chaplain, grants to William Walshe, Roger Wotton and William Frenche, a messuage (as in No. 7) for ever.

Witnesses: John Seriant, mayor, John Dert, John Bek, bailiffs, Henry Taillour, Thomas Faucon [obliteration], William Hawardyn, clerk.

Dublin, Monday after Easter, 24 Edward III., 28 March, 1350. [Seal.]

No. 12. Joan Ardoun releases and quits claim to Nicholas Ardoun, her brother, for ever, any claim she has in a tenement in Dublin, lying between the land of St. Martin, on the south, and land of Robert Sotoun, chaplain, on the north, which extends in length from St. Werburgh's Street to John Foyle's orchard.

Dated Monday after the feast of St. Patrick [obliterations, and torn] 15th year . . . E . . . . .

Witnesses: Sir Walter Reske, Roger Hoyll, Thomas son of [obliterations, and torn].

(In dorso) Evidences concerning the house wherein James Ryan dwelleth.

No. 13. William Deyer, of Cargreff, co. York, releases and quits claim to Nicholas Ardoun, citizen of Dublin, two messuages, &c., in the parish of St. Werburgh, which he has of the feoffment of Alice Sutton, daughter and heir of Thomas Sutton, formerly citizen of Dublin; in length from the highway on the west to the garden formerly John Foyle's on the east; in breadth between the tenement of Robert Sutton, canon of St. Patrick's cathedral on the north, to the tenement of said Nicholas on the south, for ever.

Witnesses: Thomas Cusake, mayor, Richard Bonde (Boone), and Thomas [Shortall, bailiffs], John Drake, Thomas Dodde, William Stapolyne.

Dated 6 Oct. [1406–1410].

No. 14. Indenture, 2 July, 2 Hen. V. (1414), between Nicholas Ardoun *alias* Sutton and Thomas Fannyn and Margaret his wife. Said Nicholas, by charter, gave to said Thomas and Margaret, a tenement and waste, in the parish of St. Werburgh, Dublin, lying by bounds (as in said charter) to them and the heirs of their bodies. They covenant to build, at their own costs, a chamber in said tenement in front towards the west, and another chamber there towards the east. They also grant that said Nicholas and Lucy, his wife, or the survivor of them, may have one of said chambers, at their choice, and also said waste place. After their deaths said premises and easements to remain to Thomas and Margaret, and the heirs of their bodies, for ever. When said Nicholas wishes to alien his own tenement on the north of said tenement, he will pay to said Thomas and Margaret, or one of them, 46*s.* 8*d.* silver, as compensation. [Seal.]

(In dorso) "The dedis of Sutton otherwysse callyt Ardoun by the churchyard."

No. 15. Nicholas Ardon *alias* Sutton, citizen of Dublin, grants to John Reynald, citizen and smith, a messuage in St. Werburgh's Street, in length from said street in front to the west, to land of John Foill towards the east; in breadth between the land which Martin Scolthorpe holds to the north, and the tenement of Thomas Fanninge, late belonging to said Nicholas, to the south, for ever. 4 Augt., 2 Hen. V. (1414). [Seal.]

No. 16. Nicholas Ardon *alias* Sutton, makes William Baldewyn and James Yonge his attorneys to deliver seisin to John Reynald of premises in No. 15. 4 Aug. 2 Hen. V. (1414). [Seal.]

No. 17. Release and Quit claim (as in Nos. 15 and 16).
7 Aug. 2 Hen. V. (1414).

No. 18. Roger Plumber and Nicholas Ketynge release and quit claim to John Reynald (as in 15, 16, 17). 8 Aug. 2 Hen. V. (1414). [Seal.]

No. 19. Thomas Fannynge and Margaret his wife release and quit claim to John Reynald, (as in 15–18).
9 Aug. 2 Hen. V. 1414). [Two seals.]

No. 20. Thomas Fannyn grants to William Bourke, a messuage lying in St. Werburgh's Street and parish, between the land of John Reynold to the north, and his land in part and the land of John Coryngham up to the land of John Foill to the east, for ever. 8 Octr. 3 Hen. VI. (1424).

No. 21. John Reynold grants to Thomas [Laweles] and Henry Nangle, chaplains, a messuage, &c., in St. Werburgh's Street, lying in length from said street in front towards the west, to land of [John Foyll] towards the east; in breadth between the tenement of William Sutton towards the north and the tenement of Robert Chamer towards the south.
21 Sep. 13 Hen. VI. (1434).

No. 22. John Reynold makes John Bennet, merchant, Dublin, his attorney to place grantees in No. 21 in seisin. 21 Sep. 13 Hen. VI. (1434).

No. 23. Release and quit claim to premises in Nos. 21, 22, 23.
24 Sep. 13 Hen. VI. (1434). [Seal.]

No. 24. Indenture 10 Aug. 32 Hen. VI. (1454), between John Vale, barber, and William [Cornell], proctors of St. Werburgh's church; William Sutton, John Burnell, Thomas Rocheford and Walter Molghane, parishioners, first part; Geoffrey Calfe and William Broun, chaplains, on the other part: witnesses that said proctors, &c., to farm let to said chaplains, a waste place of said church, with the appurtenances, lying between the door of said church, on the south, and the house of St. Mary del Dam, in which John Andron now dwells, on the north, to hold for 40 years: rent six pence, silver, to the proctors and their successors at Easter, during the life of said William Cornell and Elena his wife, and the heirs of their bodies. Said Geoffrey and William will build a chamber of oak covered with oak wood boards, and keep same in repair. If

William and Elena die without heirs, they to pay 12*d.* silver at Easter and Michaelmas to the proctors; the latter to pay chief rent, if any. Seals of Geoffrey and William, and that of the Provostship of Dublin (theirs being unknown), were attached, but this last is now wanting.

(*In dorso*) "north of church."

No. 25. Margaret Harroll, late wife of John Reynold, smith, grants to William Lawles, chaplain, and Martin Broun, chaplain, a messuage, with appurtenances, between the land of William Sutton, on the north, and the land [late Robert Chamer's] on the south, as in breadth and in length from the street in front towards the west to [a path] which William Sutton has of her donation, on the east, for ever. 28 Sep. 36 [Hen.] VI (1457). [Seal.]

No. 26. Grantor in No. 25 makes Nicholas Bellewe, clerk, her attorney to deliver seisin. [Seal.]

23 Sep. 36 Hen. VI. (1457). (*In dorso*) Werb. St. E.

No. 27. Release and Quit claim, Nos. 25 and 26. 24 Sep. 1457. [Seal.]

No. 28. By the present instrument, it appears to all that in the year 1461, Indiction 10, 4th year of Pope Pius II., in a chamber in the dwelling house of Michael Harrold, butcher, in the street of St. Thomas the Martyr, without the walls of Dublin, in the parish of St. Katherine, in the presence of the Notary and witnesses below, Margaret Harrold, late wife of John Reynold, smith, deceased, lying sick in her bed, being of sound mind and memory, lest after her death strife should arise among her friends and neighbours as to a house in St. Werburgh's Street, which said John and Margaret purchased, declared that John, her husband, willed same to her for life, and after her death to go for support of the fabric, &c., of St. Werburgh's church, under supervision of the proctors, for ever. After said John's death, Margaret enfeoffed William Laweles and Martin Broun, chaplains, on condition that during her life she should receive the profits; and after her death that it should remain to the proctors.

In ratification of this, said Margaret sought that a charter of enfeoffment should be delivered by John Vale, one of the proctors, to said William and Martin, which being delivered, she exhibited to the Notary, to be read. She ratified it, and afterwards, of her own will, gave it to said John Vale (copy charter).

Present, John Bysset, William Broun, chaplain of the parish churches of St. Katherine and St. Werburgh, Martin Broun, chaplain, William Veng,

clerk,[1] William [Cornell], armourer, and John Vaale, barber, proctors of St. Werburgh's, John Kyng, barber, and Richard White, [blank] Braban.

Certificate as to above.

(Signed) Henry Fox, clerk, notary public, Diocese of Dublin.

[notary public mark].

No 29. Notary Public instrument, 6 March, 1462, Indiction 10, 4th Pope Pius II. In the south part of the nave of Holy Trinity Church, Dublin, in presence of the Notary and witnesses below, Master Thomas Walsh and John Morgan, jurists, sitting; and Thomas Savage and William Grampey, citizens of Dublin, arbitrators and compromisers between William Cornell, armourer, and John Vale, barber, proctors of St. Werburgh's, for the parishioners, on the one part, and Thomas Sprotte, clerk,[2] on the other; as to the right and possession of a messuage in St. Werburgh's Street, lying between land of William Sutton, clerk, on the north, and land of late Robert Chambyr's, on the south, in breadth; and in length from said street in front towards the west to a part which William Sutton has on the east.

Decree that same belongs to the proctors on behalf of the parishioners; the proceeds to be expended on the fabric of the church, as by John Reynold's will provided. The arbitrators silenced Thomas Sprott for ever, and he had to give up possession.

Henry Fox, notary public, Thomas [illegible], notary public: mark of John Bowlond.

No. 30. Notarial Instrument, 26 March, 1462. Indiction 10. 4th Pope Pius II. In the cathedral of the Holy Trinity, Dublin, Masters Thomas Walsh and John Murgan, canon of St. Patrick's, William Grampe and Thomas Savage, citizens of Dublin, arbitrators between Thomas Sport, clerk, of the one part, and William [Cornell], armourer, and John Vale, proctors of St. Werburgh's on the other, as to property in a house lying next that of William Sutton, Baron of the Exchequer, in said parish, wherein said Sport now dwells, formerly John Reynold's, and Margaret Harrold's, his wife, lately deceased, which after her husband's death she gave to said Thomas Sport and his heirs, for ever, as he asserted. Said proctors asserted that same should remain to said church after her death, as her husband willed; also in her will she ratified his will, and left it to the proctors, on behalf of

[1] Clerk of St. Katherine's in 1470.

[2] John Sprot, clerk, in 1468 was granted by the city assembly the Dames "Muskyn" (near the present Dame Street) for a term of 40 winters, paying 8*d.* yearly; he was to make a wall and door in front, and keep the forestreet clean. (*Calendar of Ancient Records*, Gilbert, i, 330.)

the church. The document being exhibited, nothing valid was shown on behalf of Sport. Decree that the house be St. Werburgh's for ever. The arbitrators commended repairs that Sport had made, and they allowed him to remain in said house rent free until Michaelmas next.

Witnesses: Master John Bowlond, notary public, Richard Arthure, John Russell, and John Fitz Eustace, tailor.

Certificate and notary public mark of Henry Fox.

No. 31. Thomas Sprot, Dublin, clerk, grants all his right in a garden near St. Martyn's orchard, parish of St. Werburgh, to Nicholas Sutton and his heirs. It lies between the town wall and a garden of John Gennet.
10 March, 8 Edward IV. (1468). [Seal.]

No. 32. Martin Broun, chaplain, grants to Patrick Burnell and Patrick Grot, proctors of St. Werburgh's church, a messuage, with the appurtenances, in the street and parish of St. Werburgh, wherein Thomas Archebold, otherwise called Galmole, now dwells; to hold to them and their successors, proctors, for ever. 12 Sept., 19 Edward IV. (1479). [Seal.]

No. 33. Martin Broun makes Richard Rouse, clerk, his attorney to place the proctors in seisin (as in No. 32).
12 Sept., 19 Edward IV. (1479). [Seal.]

No. 34. Release and Quit claim of same.
16 Sept., 19 Edward IV. (1479). [Seal.]

No. 35. Indenture, 20 Sept., 19 Edward IV. (1479), whereby Patrick Burnell and Patrick Grot, proctors, let to farm to Thomas Archebold, also called Galmole, the messuage in St. Werburgh's parish, in which he now dwells, for twenty winters, beginning at Christmas. Rent 14 shillings.

No. 36. Indenture, 20 July, 22 Edward IV. (1482), between Adam Gare, chaplain, of the one part, and Sir Thomas Laundy and Sir Elise Feld, chaplains, on the other. On the above-named day, Sir Adam Gare made a feoffment to said chaplains and their heirs for ever, of a stone house or great place in Dublin, with two cellars and a garden, in the street and parish of St. Werburgh the Virgin, next adjoining to the south wall of the city by the Polegate on the west part of said street. The intention and will of the grantor is that the chaplains should hold same to the use of Dame Mawde Plunket, for life, and on her death to the use of Elizabeth Talbot, her daughter, and the heirs of her body; should she die without heirs of her body, then to the use of St. Werburgh's church for ever; to find a priest to

sing at our Lady's altar for ever in said church, for the souls of William Boxseworth and Margaret Bosseworth and Dame Maude Plunket, and all their generation. Sir Adam delivered seisin to them, according to the will. In case of the deaths of Sir Thomas and Sir Elise, leaving Mawde, Elizabeth, and the heirs of Elizabeth survivors, then to make a feoffment in fee to two other honest priests, one at the election of Dame Mawde, if living, or of said Elizabeth and her heirs; and the other priest at the choice of the proctors of St. Werburgh's; and so from priest to priest, when needful. [Two seals.]

(*In dorso*) "a declar^{a}. of a Wyll upon Eustace howse by the Polgate, corncernynge y^{t}. Lady Hibbott's howse at Polegate. yt is since this grant was made to the church of St. Werburgh one hundred and twenty and three years. dat. 1 Sep. 1605."

No. 37. Indenture, 18 Feb. 6 Henry VII. (1491), between Walter Baldewyn, Dublin, gent., and Nicholas Laweles, of same, merchant, proctors of St. Werburgh's, of the one part, and John Archebold, of said city, gent., of the other. The proctors to farm let a cellar lying in St. Werburgh's Street, near the door of said church, on the north, for twenty-one years. Rent 6*s.* 8*d.* silver. "East side of church."

No. 38. Indenture, 30 April, 24 Hen. VII. (1508), whereby Thomas Ashe, Dublin, baker, and Richard Dugyn, glover, proctors to farm, let to Philip White, Dublin, merchant, a tenement in St. Werburgh's Street, with a "forneys" of brass belonging to same, from the street on the west to the ground of St. Werburgh's on the east, and from Christ Church ground on the south to Christ Church ground on the north; for 41 years. Rent 14*s.*

No. 39. Counterpart of No. 38.

No. 40. Indenture, 25 March, 1534, William Kelly, Dublin, merchant, and John Elys, goldsmith, proctors or wardens of St. Werburgh's, let to Nicholas Stanyhurst, notary, a house, with a small garden, in St. Werburgh's Street, wherein Margaret FitzWilliam, widow, lately dwelt, on the south side of a house of Christ Church ground, wherein said William Kelly dwells; for 59 years. Rent 13*s.* 4*d.* yearly. Said Nicholas to build a wall of stone and lime, a man's height, under the south side of said house. [Seal.]

(*In dorso*) Garden, Werburgh Street, west the church.

No. 41. Indenture, 10 June, 1 Edward VI. (1547), between William Lyon and Richard Edwarde, proctors of St. Werburgh's, on the one part, and Sir Patrick Dongan, chaplain, on the other, whereby they to farm let a chamber, namely, the small chamber which James Cleere now occupies, and the chamber

over same which Sir Patrick now occupies. To hold for 31 years. Rent 3*s.* 4*d.* yearly. [Seal.]

(Signed) Sr. Patrick Dongā.

No. 42. Indenture, 1 Sept., 1 Edward VI. (1547), between same proctors and Nicholas Stanyhurste, parish of St. Werburgh, gent, on the other. They demise and to farm let to said Nicholas a chamber, with a cellar, on the north side of the door of St. Werburgh's Church, for 61 years; rent 3*s.* 8*d.* [Seal.]

(*In dorso*) "Ther is this day beinge the firste daye of Sepr., 1605, of this lease yet unexpired three years. A lease to Nicholas Stanyhurst of a chamber and cellar on the north side of St. Warborough's Church, determining 1607."

No. 43. Indenture, 7 Oct., 1 Edward VI. (1547), between same proctors and John Dempsy, Dublin, baker. They to farm let to him a chamber over the churchyard door, with appurtenances; to hold for 61 years; rent 16 pence, Irish, yearly. [Two seals.]

(Signed) "Rychard Edward per me John Ryan."

No. 44. Indenture, 1 Oct., 1588, William Kelly and John Morphe,[1] Dublin, chirurgians, proctors of St. Werburgh's, and the parishioners, demise and to farm let to Robert Bee, Dublin, goldsmith, a house or messuage on the south side of said church door, 11 yards in length, 4 yards in breadth, with a small room over the entry going into said church; bounding on the north to said church ground, which Richard Stanhurst holds; on the east to the church wall; on the west to the Queen's pavement; on the south to the west end of the south wall of said church; for 61 years; rent 40*s.* Irish, yearly.

Witnesses, John Durning, Edward Thomas, Rich. Jonos, Clement Francis, Wyllame Whyt, John Mylles, William Myllychapp, Yevan Meredith, Edward Waylshe, Rowland Cowne, Thomas Magwire, William Allen, mark of Rich. Enos.

No. 45. Indenture, 15 July, 1598, Thomas Wackefeld and Patrick Ardagh, haberdasher, Dublin, proctors, let to Walter Locke, Dublin, baker, a small chamber over the churchyard door, "conteining" to the west window of the Mary chapel, for 61 years; rent, 20 pence Irish, yearly. Said Walter not to blemish or hurt the light of the western window in the south side of the church next said chamber; and he to keep the under room of said chamber as a way to the churchyard; and not to "let" (hinder) the passage thereof. [Seal.]

[1] William Kelly was named in the second Charter of the Barber Surgeons, 1577, and was Master of the Gild, 1576-8. John Morphe or Morphin was Warden, 1583-5. *Journal*, R.S.A.I., 1903, p. 217.

Witnesses, Edward Thomas, John Mylles, Rich. Jones, Clement Francis, Robert Bee, mark of John Verdon, Rowland Cowne, Pet. Dermonde.

No. 46. Indenture, 26 Nov., 1695, John Lany, cutler, and Nicholas Hawarde, gent., proctors, to Gerald Younge, Dublin, Alderman (reciting that by deed of 20 Nov. 1695, they had let to him a messuage with the appurtenances, and a garden in St. Werburgh's Street, in which James Ryan, deceased, dwelt, with an orchard in the backside, which premises lie south of a house in which Walter Lock, baker, lives; and an orchard adjoining to Cow Lane[1] on the east, and church land of St. Werburgh's on the west; and one other tenement in Castle Street, now occupied by Thomas Magwiere, tailor, adjoining in length to the pavement on the south, and Kent's ground on the north and in breadth to the King's ground, late St. John's without the New Gate, on the west, and to ground of St. Werburgh's on the east, for 61 years). Now, in consideration of £35, good Elizabeth silver of England, the proctors grant the premises to Gerald Younge for 61 years: the said sum being as a fine towards the building of said church of St. Werburgh, now down and ruinous: rent, 48*s.* yearly.

[Seal.]

No. 47. Indenture, 4 March, 1624, whereby the churchwardens let to Ann Howard, Dublin, widow, a house, tenement or shed adjoining the church of St. Werburgh, for 31 years; rent, 20*s.* English, yearly.

Witnesses, Josua Hoyle, minister, Ch. Forster, Geo. Jones, Henry Robinson, mark of Robert Springane, R. Cotton, Wm. Dixon, John Beckett.

No. 48. Indenture, 30 March, 1637, Ralph Leventhorpe, Esq., to Richard Edwards, tailor (reciting that Susan Cheshire, widow, administratrix of Henry Cheshire, deceased, by deed of 1 March, 1633 granted to said Richard Edwards a moiety of an orchard adjoining to the Great House in Werburgh Street, where James Ryan, Esq., deceased, lived; bounded [torn] from the expiration of a lease which said Richard had; rent, 40*s.* Also, said Susan Cheshire, by deed of 1 Sept. 1624 demised to said Richard the moiety of said orchard, messuage and tenement, for 21 years from the expiration of the above-mentioned lease. Richard Edwards, by deed of 18 Sept., 1637 (*sic*), for obtaining a longer term from said Ralph, as for abatement of rent, &c., gave up all the above to him for the term yet unexpired). Now, said Ralph grants to said Richard Edwards, half the orchard in breadth from the stone wall adjoining Sir James Ware's garden on the east to the churchyard wall of St. Werburgh's on the west, 25 yards; and from the wall adjoining said garden on the north to the new pale set from lately set up by said Ralph, on the south, 25 yards:

[1] Ireland from Castle Street north to Fishamble Street.

now in occupation of said Richard Edwards, for 41 years; rent [torn] 8 pence. Witnesses, Fra. Aungier, Peter Clayton, Tho. Edwards, Dancer Hancock.

No. 49. Indenture, 19th Oct., 1651, John Woodes and Nathaniel Foulke, proctors (in consideration of 10*l.*, paid by Captain William Meares in 1607 towards the building or repair of St. Werburgh's church, and also in performance of a decree of the Commissioners for Administration of Justice, enjoining same), let to John Kennedy, Dublin, Esq., executor of Meares, a house or messuage on the south side of the church door, eleven yards long, and four yards broad, with a small room on the entry going to said church; bounding on the north to said church ground, which Edward Jones now holds; on the east, to the church walls; on the west to the street; and on the south to the west end of the south wall of the church; to hold from 2 Oct, 1649, for 61 years; rent, 40 shillings yearly.

Witnesses, Thomas Morrison, William Bladen, Robert Deey, Sankey Sulliard, Jo. Woodcocke, Rich. Heydon, Giles Rawlins.

(*In dorso*) The Watch House, Werb. St.

No. 50. Indenture, 11 Oct., 1666, James Yates and John Harrison, churchwardens, in consideration of his surrender of a lease made to John Kennedy, deceased, father of grantee, on 19 Oct., 1651, pursuant to order of the parishioners dated 22 Sept., 1663, let to George Kennedy (as in No. 49), to hold from 29 Sept., 1663, for 70 years; rent, 30*s.* yearly. [Seals.]

Witnesses, Henry Yeates, Richard Carney,[1] Stephen Hackney, Will. Pridham.

(*In dorso*) Werburgh St., adjoining to or part of the present schoolhouse, Mary Kennedy, widow and executrix of George Kennedy, in consideration of 130*l.* gives up this lease to Rev. Theo. Bolton, minister, James Dowan, skinner, and Ed. Morton, glover, churchwardens, 10 Oct., 1716.

No. 51. Lease, 26 Sept. 1668, Richard Younge and George Stoughton, churchwardens of St. Werburgh's, to Anne Hoyle, spinster, (reciting that John Lany and Michael Howard, churchwardens, by deed of 26 Nov. 1605, let to Gerald Young, Dublin, alderman, a tenement, buildings, and garden in St. Werburgh Street, wherein James Ryan dwelt, with an orchard back of said messuage, on the south of the house wherein Walter Lock, baker, dwelt, and an orchard adjoining to the Cowe lane of said city, on the east; the church land of St. Werburgh's on the west; also one other tenement in Castle Street,

[1] Sir Richard Carney, Knt., a portrait-painter. In 1655, Principal Herald of Arms; 1661, Athlone; 1683, Ulster King of Arms. His will was proved in 1692 (Dublin Dio.). For account of him see *Dictionary of Irish Artists.* W. G. Strickland.

wherein dwelt Thomas Magwire, tailor, adjoining in length to the pavement on the south, Kent's ground on the north; and in breadth to the king's ground, late St. John's without the New Gate, in the west, and St. Werburgh's church ground on the east; for 61 years from the expiration of a former lease granted to the said Gerald, which expired at Mich. 1666, at a rent of 48*s*.). At. Mich. next, 59 years will be unexpired, and Anne Hoyle now relinquishes her title.

In consideration of 20*s*. paid by her towards the repair of the church, the said churchwardens now let to Anne Hoyle the tenement in St. Werburgh Street, known by the sign of the "Gunne," late in the tenure of Eustace Hooker, dec^{d}, and now in that of William Bottomley, bricklayer, on the east of the street, in breadth from N. to S. in front 18 feet, and from the front in the west with the garden and houses along the alley called Leventhorpe's to the Castle ditch in the east, 249 feet; and in the back part in breadth from the city wall on the south to the orchard wall in the north, now William North's, girdler, 97½ feet; bounded on the south by a yard of Sir Theo. Jones's, several tenements in an alley called Hoey's alley and the city wall; on the north by Walter Lock's house aforesaid, now belonging to Robert Turner, innholder, and by said orchard wall, and part of James Ware's garden; on the west by the pavement, and on the east by the Castle ditch. Said orchard mentioned as in possession of William North contains E. to W. in the north, 73¼ feet; N. to S. in the east, 72¾ feet; E to W. in the south, 75 feet; and S. to N. in the west, 65 feet 8 inches; bounded on the north by tenements in the possession of said William North, widow Lambert, Joseph Stoker and widow Hughes; on the east by James Ware's garden; on the south by several tenements in Leventhorpe's alley; and on the west by St. Werburgh's churchyard and part of Robert Turner's yard, and the tenement in Castle Street; E. to W. in front, 18 feet in breadth, and so much in breadth back along, and depth from front in the south to the back thereof in the north 76 feet; and bounded on the south by the street, in the north with part of the yard belonging to the London Tavern, now belonging to George Hewlett, vintner; on the west by alderman Nathaniel Fooke's tenement, and on the east by William Eve's tenement, also belonging to said parish church, called Corrigan's Inns: for 61 years. Rent, 48*s*.

No. 52. Indenture, 8 April, 1669, Richard Young, gent., and George Stoughton, late churchwardens, let to Robert Turner, Dublin, innholder, a room or chamber now in his possession, over the passage leading from the common street in the west into the churchyard belonging to said parish, which room joins northward to the church wall, and southward to part of

said Turner's now dwelling house, with liberty for him to enlarge said room forwards to the street over the door and forepart of said passage; provided that he in no wise alter or damnify the frontice ornament over the door joining to said street; the dimensions over which he has liberty being 7 feet broad in front next the street, on the west; and in length from said front backwards to the east 25 feet, on the south side thereof; and in length from said front backwards on the north side next the church 19^{b} feet; and in breadth on the east from the south corner to the north corner, as the same room is now built in a slope 12^{c} feet; together with a small parcel of ground next within the churchyard door on the south side going in, containing 8 feet long, and 4 feet broad, adjoining to part of said Turner's house; to the end that said Turner and his assigns may thereby clear and prevent the annoyance which is in said churchyard. To hold from 25 March last for 17 years: rent 10*s.* English. Ephr. Beak, Will. Pridham.

No. 53. Indenture, 2 Feb., 1674, Jonathan Northeast, merchant, and George Southaick, watchmaker, churchwardens, in consideration of surrender, and that he re-edify the sides and front of the door and entry leading from the street to the churchyard, grant to Robert Turner, innholder, a room or chamber (as in No. 52), with the addition that if Turner happen to build in the yard, he may rest the timber, and also build upon the said churchyard wall next to his yard; to hold from the Annunciation B. V. M. next for 61 years; rent 10*s.* yearly. Turner not to interfere with the carrying of corpses into the churchyard, or any other necessary thing; and to permit and maintain passage of the fall of water from the churchyard through demised piece of ground. Witnesses, James Tasker, Wm. Pridham.

No. 54. Counterpart of No. 53.

(*In dorso*) Lewis Davids and Marg. Sherlott, his wife, and Marg. Sherlott, yong^{r}, her daughter, admi^{x} of Robert Turner, Letice his wife, and Nath^{l} Harman, Dublin, dec^{d}, in consideration of 20*l.* paid by William Harborne and PeterWalker, churchwardens, surrender the premises to them.

23 March, 1714/15.

THE CHURCHYARD.

No. 55. Lease, 29 Apl., 1676, Robert Turner, innholder, and William Hartley, cordwainer, churchwardens of St. Werburgh's, to Richard Carney, Esq., in consideration of his having arched over the charnel house lately made in the churchyard, and also having made a vault in same, as ordered at a Vestry Meeting, for the public use of the parish, to bury in; and in consideration of his (at his own charges) gilding and painting all the panels of all the

galleries in the parish church —— grant him part of said churchyard on the north side, being for the most part useless to bury in, by reason of a sink running under it, to be fenced in by him—in length from N.E. corner of the gable end of the chancel to the churchyard wall in the east 50 feet. In breadth, south into the churchyard from the gable end of buildings now being on the north side of said churchyard 9 feet for the space of 32 feet eastward to a return "butting" about 2 feet further into said churchyard; and from said return to said churchyard wall in the east, 10 feet in breadth from the gable end of said building on the north side southward into said churchyard, with a passage into the churchyard from the demised ground. To hold all (except said charnel house and vault), with free liberty to make use of them to lay bones and bury in, for 91 years. Rent 3*s.* 4*d.*

No. 56. Indenture, 1 June, 1676, Robert Turner, innholder, and William Hartley, cordwainer, churchwarden in consideration of 10*l.* paid towards repair of the church of St. Werburgh), let to Elizabeth Newcomen, Dublin, widow, a parcel of ground being part of St. Martin's Lane, belonging to said parish church, and adjoining the north side of the chancel, in length from the east gable end of the north part of said church eastward to the new charnel house, 35 feet, and 12½ feet broad in the west end of said ground, and 10½ feet broad in the east end thereof; the thickness of the churchyard wall all along on the north side of the demised ground included. On the east of the said ground there is a "shade" already built, 24 feet long and 9 feet broad. To hold from Easter last for 61 years; rent 2*s.* 6*d.* yearly.

Witnesses, E. Wetenhall,[1] curate; Ric Croft, Abel Ram, Cha. Carter, Rich. Lord, Rich. Carney, Isaac Colcock, Geo. Stoughton, Will. Pridham.

Castle Street.

No. 57. Geoffrey del Yvet grants to Helyas Burel and his heirs or assigns his land in Castle Street, parish of St. Werburgh, lying between the land which was "Wydon's" of Cornwall,[2] on the one side, and land which was Gilbert del Yvet's, which he bequeathed to the House of All Saints, on the other; in front, 18 feet, and in length from the street to the cemetery of St. Werburgh, to him and his heirs for ever; rent, 12*d.* yearly, saving land-gable to the King.

Witnesses, John la Warre, mayor; Richard Pel, provost; Philip de

[1] Bishop of Cork, 1679. His classical grammars are well known. Dr. Wetenhall was buried in Westminster Abbey.

[2] Guy the Cornishman was Provost of Dublin, 1229-30.

Dureham, William de Flemstede, Randulph Canutus (Ralph le Hore), William Sweteman, William the clerk, William Pikot. *cir.* 1243.

(*In dorso*) a dede of folleys grove in Castalle Street.

No. 58. Margery, who was wife of William de Callan, formerly citizen of Dublin, in her viduity, grants to Stephen de Mora, citizen, waste land in Castle St., Dublin, in breadth between the tenement of said Stephen towards the east, and land of Robert de Bristoll towards the west; and in length from the High Street towards the south to land of Thomas Bolace towards the north. To hold for ever.

Witnesses, Robert de Notingham, mayor; Robert le Wodere, Robert de Menis, bailiffs; John le Decer, Robert de Wileby, Thomas Bolace, William le Shereman, Hugh de Molinger, clerk.

Dated Friday after the Feast of St. Michael, 10 Edward II., 1316.

No. 59. Alexander de Kylmaynan, son of Reginald de Kylmaynan, formerly citizen of Dublin, releases and quits claim to Stephen de Mora, citizen, a waste land, with appurtenances, which formerly belonged to his father, Reginald, in Castle Street, Dublin, which Stephen had of the feoffment of Margery, daughter of John Hayde (as in No. 58).

Witnesses, Robert de Notingham, mayor; Robert le Wodere, Robert de Menis, bailiffs; Robert de Wyleby, Robert de Bristoll, Thomas Bolace, Simon le Armurer, Hugh the clerk. Dublin, 3 Dec., 10 Edward II. (1316).

No. 60. An indented agreement made on Thursday before the Feast of Easter, 17 Edward II. (1324), between Richard, son of Robert de Bristoll, and Adam Burnel, whereby Richard demises and to farm lets to Adam, two shops, with the appurtenances, in Castle Street, which he has of the donation of Robert de Bristoll, his father, which two shops lie between the tenement of the Prior of the Hospital of St. John without the New Gate, Dublin, and the tenement of Stephen de Mora, for seven years (for money in hand paid) from Easter: rent, a rose, at the Feast of St. John the Baptist. [Seal.]

No. 61. John, son of Robert de Bristoll, citizen, grants to Adam, son of William Burnell, a place of land, with buildings, and all the appurtenances, in Lormeria,[1] in Castle Street, Dublin, lying between the tenement of Stephen de Mora, citizen, and the tenement of the Prior of St John without the New Gate; in breadth, 28 feet; in length, 85 feet. To hold for ever, at a rent of one penny, and to the chief lords their services.

Witnesses, John le Decer, mayor; Stephen de Mora, Giles de Baldeswell,

[1] A district inhabited by lorimers (spur- and bit-makers).

bailiffs; Robert Tanner, William le Mareschall, Geoffrey Crump, John de Moenes. Dublin, 12 May, 19 Edward II. (1326).

No. 62. John, son of Robert de Bristoll, citizen, releases and quits claim to Adam, son of William Burnell (as in No. 61). Same witnesses. [Seal.]

No. 63. Peter Penrys, citizen, grants to Thomas Dyloun, and Elena his wife, a messuage, &c., within the walls of Dublin, in Castle Street, lying in breadth between the messuage that Agnes Burgh holds for life, towards the east, and the messuage formerly Adam Burnel's, towards the west, to land of Thomas de Kilmoor, clerk, and Susan his wife, towards the north, which grantor has of the bequest of Stephen de Mora, for ever.

Witnesses, Kenewrek le Shereman, mayor, John Creeks, William Waleys, bailiffs, William Douce, Philip Cradok, Giles de Baldeswelle, William de Boseworth, Roger de Kyldare, Robert del North, Thomas Faucoun.

Dublin, Wednesday before the Feast of the Annunciation of the B.V.M., 15 Edward III. (1341). [Seal.]

No. 64. Same releases to same (as in No. 63).

Dublin, 1st April, 15 Edward III. (1341). [Seal.]

No. 65. William Penrys, brother of Peter Penrys, releases to same (as in Nos. 63 and 64). [Seal.]

Dublin, 1st April, 15 Edward III. (1341).

No. 66. Agreement made on Sunday in the Feast of Easter, 16 April, 20 Edward III. (1346), at Dublin, between William Hirdman, citizen, and Mariota, his wife, and Thomas Dilloun and Elena his wife, whereby they to farm let to them, two shops, in Castle Street, lying near the tenement of Thomas and Elena, for 12 years; rent 18*s.* yearly. If William and Mariota, their heirs, &c., construct a hall instead of said shops within said term, it shall be lawful for William and Mariota to enter without interruption. [Seal.]

No. 67. William Hirdman and Mariota, his wife, grant to Thomas Dilloun and Elena his wife, a messuage in Lormery, Castle Street, in breadth between the tenement of said Thomas towards the east, and the tenement of the Prior and convent of the House of St. John without the New Gate towards the west; and in length from said street in front towards the south to the tenement of Thomas de Kilmore, clerk, behind, towards the north, in length 85 feet, for ever.

Witnesses, John Seriaunt, mayor, Roger Grauncourt, Walter Luske,

bailiffs, Giles de Baldeswelle, William Foyl, Adam de Allisley, Thomas Faucoun, John Rothewell, Richard de Celer.

Dublin, Monday after the Feast of the Apostles Simon and Jude, 20 Edward III. (28 October, 1346). [Two Seals.]

(*In dorso*) Riane's house in Castle Street. Evidences concerning a messuage in Castle street in lease with James Ryan.

No. 68. Same release to same (as in No. 67).

Witnesses, John Seriaunt, mayor, Roger Grauncourt, Walter Luske, bailiffs, Giles de Baldeswell, William Foille, Richard Celer, Ad. Allisley.

Dublin, after the Feast of St. Clement, 20 Edward III. (23 November, 1346).

No. 69. Master Henry Ferrour, citizen, grants to John White, clerk, a messuage and two shops in Castle Street, in length from said street in front to waste land of Mariota Bolas on the north, behind; in breadth from the waste land of the Prior of St. John without the New Gate, Dublin, on the west, to the messuage of John Allesley, on the east, for ever.

Witnesses, John Wydon, mayor, John Foill, Roger Fallyagh, bailiffs, Peter Woder, John Passavant, Edmond Berle, Nicholas Seriaunt, William Waleys, Rich. Chamberleyn, John Hull. [Seal.]

Dublin, Saturday after the Feast of Cinders, 47 Edw. III., March, 1373.

(*In dorso*) Castle street, N.

No. 70. Release and Quit claim, same to same.

Dublin, Monday after the Feast of St. Patrick, 47 Edward III. (1373). [Two Seals, one being that of the Provostship of Dublin.]

No. 71. John White, clerk, grants to Robert Loundres, citizen (as in Nos. 69 and 70).

Dublin, Sunday after the Feast of St. Wolstan the Bishop, 3 Ric. II. (19 Jan. 1380).

Nos. 72, 73. Release and Quit claim, same to same.

Dublin, Monday after the Feast of St. Wolstan the Bishop, 3 Ric. II. [Seal.]

(*In dorso*) "The writinges concerninge the howse wherein Richard Edwards, taylor, dwelleth, from Thomas foyle." Castle street, N.

No. 74. Robert de Loundres, citizen, is bound to John White, clerk, and Richard Bertrame, citizen, in nine marks of silver, to be paid, five marks at

Pentecost next, after completion of this Bond; two marks at Michaelmas next; and two marks at the Nativity of our Lord.

Dated Monday after the Feast of St. Wolstan, 3 Ric. II., 1380. [Seal.]

No. 75. Robert de Loundres grants to John Passavaunt, Walter Passavaunt, citizens, William Passavaunt, Thos. Frende, and Robert Prout, a messuage in Castle St., formerly Henry Ferrour's, to hold to grantees for the term of his life, of the chief lords of the Fee.

20 March, 8 Ric. II. (1385). [Seal.]

No. 76. Grantees in No. 75 release and quit claim to grantor.

4 May, 10 Ric. II. (1387). [Two seals.]

No. 77. Robert Loundres grants to John de la Ryver, citizen (as in 72–76), for ever.

Witnesses, Tho. Cusak, mayor, Robert Piers, Richard Taylor, bailiffs, Wolfran Broun, John Broun, Gilbert Sex. sheerman, David Sex. sheerman.

Dublin, 3 Oct., 2 Henry IV. (1400). [Seal.]

No. 78. Counterpart of No. 77.

Nos. 79 & 80. Release and Quit claim. Same to same (duplicates).

Dublin, Feast of All Saints, 2 Hen. IV., 1 Nov., 1400. [Seals.]

No. 81. Robert Loundres grants to Robert Hothum, chaplain, and Walter Reske, chaplain (as in 77–80).

Witnesses, John Drake, mayor, John Philpot, Walter Tirrell, bailiffs, Master Richard Carran, clerk, Hugh Possewyke, John Tym, clerk, Thomas Shortals.

Dublin, 14 June, 3 Hen. IV. 1402.

Two seals, one being that of the Provostship of Dublin.

No. 82. Release and Quit claim. Same to same.

Same witnesses.

Dublin, 15 June, 3 Hen. IV. (1402).

No. 83. Release and Quit claim, John Hothum and Walter Reske, chaplains, to John Ryver, skinner, Dublin (as in No. 82), save "waste land of Richard Giffard, which formerly was of Mariota Bolas." [Two seals.]

4 March, 4 Hen. IV. (1403).

No. 84. John Ryver, citizen, releases and quits claim to John Skillyngton, John Hothom, and Walter Reske, chaplains (as in No. 83).

Witnesses, Thomas Cusak, mayor, John Philpot, Richard Clerk, bailiffs, Wolfran Broun, John Passelewe, Tho. Shorthals. [Seal.]

Dublin, 26 Jan., 5 Hen. IV. (1404).

Nos. 85 & 86 (counterparts). Indenture between John Hothom and Walter Reske, chaplains, and Nicholas Tynbegh, Stephen Tynbegh, William Baldewyn, Patrick Forstall, and Nicholas White; the chaplains grant (as in No. 84) for ever. Rent 50 shillings, silver, yearly.

Witnesses, John Drake, mayor, John Philpot, Walter Tyrrell, bailiffs, Robert Callan, John Callan. [Five seals.]

Dublin, 20 Feb., 7 Hen. IV. (1406).

No. 87. John Skyllyngton, chaplain, releases and quits claim to John Hothom and Walter Reske, chaplains (as in 85 & 86).

Dublin, 30 Oct., 7 Hen. IV. (1405). [Seal.]

(*In dorso*) "The dedys of the messuage next Corryngam ys hynnes."

No. 88. John Roche, otherwise Jurdane, and Amicia, his wife, release and quit claim to Nicholas Tynbegh, Stephen Tynbegh, Wm. Baldewyn, Patrick Forstall, and Nicholas White (as in Nos. 85 & 86).

Dublin, 10 Dec., 9 Hen. IV. (1407). [Two seals.]

No. 89. John Herdman releases and quits claim to John Hothom and Walter Reske, chaplains (same premises).

Witnesses, Thomas Cusak, mayor, Richard Bone, Thomas Shorthals, bailiffs, Robert Burnell, Geoffrey Parker.

1 Novr., 12 Hen. IV. (1410). [Seal.]

No. 90. 21 January, 1444, Walter Northampton, chaplain, grants to William Hogge and Martin Broun, chaplains, a messuage in which John Coryngham now dwells, lying in Castle St., in length from said street in front, to a messuage in which John Bennet now lives on the north behind; in breadth from waste land of the Prior of St. John's without the New Gate on the west, and the messuage of Allesley, in which James Oweyn now dwells, on the east, To hold for ever of the chief lords of the fee.

Witnesses, Nicholas Wodere, mayor, John Walsh, Walter (*recte*) William Curragh, bailiffs, John Seys, Richard Broun, John Foyll, William Baldewyn.

Dublin, 21 Jan., 22 Hen. VI. (1444).

No 91. Same as No. 90, save that the date is 22 Jan. [Seal.]

No. 92. John Foyll, citizen, grants to John Nangle, Martin Broun,

William H[...], cl., John Owayne, chaplains, all his messuages, lands, &c., which he has in Dublin and the county of Dublin, for ever.

19 June, 25 Hen. VI., 1447.

No. 93. Grantor in No. 92 makes John Downe and Robert [torn] his attorneys, to place the chaplains in seisin.

19 June, 25 Hen. VI. (1447).

No. 94. John Foyll releases to the chaplains (as in Nos. 92 & 93).

26 June, 25 Hen. VI. (1447).

No. 95. The chaplains grant to John Foyll (as in Nos. 92–94).

7 July, 25 Hen. VI. (1447).

No. 96. Indenture by which Robert, son of John Foyll, citizen, grants and to farm lets to John Jonet, fisher, a messuage and leaden furnace weighing 18 stones, in Castle Street, with an orchard appertaining to the messuage, lying between land of the Prior and Convent of All Saints, on the east, and land lately John Corvngham's, clerk, on the west, and the cemetery of St. Werburgh's Church on the south, and Castle Street on the north, which orchard lies close to said cemetery on the east, to hold for the life of John Bellewe, Thomas Beilewe, James Kyllery, Patrick Burnell, Richard More, John White, John Blake, and John Broun, or 40 years. Rent, a grain of corn at the Nativity of St. John the Baptist. 26 June [cut away], *circ.* 1454.

No. 97. Robert Foyll, son of John Foyll, citizen, and John Jonet, fisher, grant to Martin Broun and William Broun, chaplains, John Vale, barber, and William Cornell, armourer [proctors], an annual rent of 6*s.* 8*d.* silver out of the messuage in No. 96 for ever. 21 Aug., 32 Henry VI. (1454).

[Two seals.]

(*In dorso*) Inrolled in Domesday *tempore* Nicholas Wodere, knight, mayor of Dublin, James Blakeney, Esq., and William Chamberlayn, bailiffs, in 32[d] year of King Henry VI. (1454).

No. 98. John Vale, barber, William Cornell, armourer, proctors of St. Werburgh's; William Sutton, gent., John Burnell, gent., Thomas Rocheford, gent., and Walter Molghane, corviser, release the rent of 6*s.* 8*d.* in No. 97 to Robert Foyll, and pardon all arrears.

20 Aug., 32 Henry VI. (1454). Seven seals, one of them being that of the provostship of Dublin. Entered in Domesday.

No. 99. Indenture, whereby the proctors and grantors in No. 98 grant to Robert, son of John Foyll, late citizen of Dublin, and John Genet, fisher, free

ingress and egress by the cemetery of St. Werburgh's Church from the house of said Robert close to it, on the north side, up to his orchard on the east, and from said orchard to said house, as may seem fit to them, together with a course for rain water running or arising in said cemetery from the foundations of said house, for 40 years. Rent to the proctors and their successors, one penny, silver.

20 Aug., 32 Henry VI. (1454). [Two seals.]

(*In dorso*) The denture of folle ys groue in y^e^ Castell St.

No. 100. Indenture, whereby Martin Broun, chaplain, and William Coryngham let to farm to John Bennet, citizen, a chamber with a soler, parcel of their messuage adjoining said John's messuage to the north, which contains below in length, four royal virgates, and in breadth, four; and the soler above eight virgates in length and four in breadth; for fifty years. Rent 20 pence, silver.

16 July, 3 Edward IV. (1463). [Two seals.]

(Part of Corryngham's Inns.)

Nos. 101 and 102. Counterparts of No. 100.

(*In dorso* of No. 102) "Coryg^a^m for y^e^ cham^r^ in y^e^ bawne."

No. 103. Martin Broun, chaplain, and William, son of Hugh Coryngham, let to farm to John Tany, citizen, the house formerly John Coryngham's (except a chamber with soler beneath the chamber, parcel of said house), next John Bennet's messuage, in length and breadth four royal virgates, for 12 years; rent 18 shillings 4 pence silver (unless said William marry and wish to live in said house.) 3 Oct., 3 Edward IV. 1463). [Two seals.]

No. 104. John Tany, citizen, merchant, enters into a Bond with William Sutton, Walter Baldewyn, John Vale, William Cornell, and Nicholas Bellewe, clerk, in £20 silver. The condition is, that if the proctors of St. Werburgh's or their successors be molested by Tany, by occasion of any gift, alienation or title by him made of a house or messuage, formerly John Coryngham's in Castle Street, that then it be paid. [Seal.]

6 Oct., 6 Edward IV. (1466).

No. 105. William Coryngham, son and heir of Hugh Coryngham, grants to Rich. Leyns, advocate, Walter Baldewyn, William Cornell, and Nicholas Fitzleones, clerk, a messuage in Castle Street, formerly said Hugh's, for ever.

10 May, 6 Edward IV. (1466). [Seal.]

No. 106. Martin Broun, chaplain, releases and quits claim to Walter

Baldewyn, William Cornell, and Nicholas Fitzleones, of a messuage in which John Coryngham formerly dwelt, in Castle Street; in length, from said street in front, to the messuage wherein John Bennet dwells on the north, behind; in breadth, from waste land of the Prior of St. John's without the New Gate on the west, to the messuage, late John Allesley's, now "mes sutor," in which James Oweyne lately dwelt, on the east. [Seal.]

16 March, 7 Edward IV. (1467).

No. 107. Walter Baldewyn, merchant, and William Cornell, armourer, grant to Patrick Burnell and Patrick Grot, proctors of St. Werburgh's, a messuage in Castle Street, called Coryngham's Inns, to hold for ever.

12 Sept., 19 Edward IV. (1479). [Two Seals.]

No. 108. The grantors in No. 107 make Richard Rouse, clerk, their attorney to place grantees in seisin, for ever,

12 Sept., 19 Edward IV. (1479). [Seal.]

No. 109. Grantors in No. 107 release and quit claim to grantees.

16 Sept., 19 Edw. II. (1479). [Two Seals.]

(*In dorso*) "Concerninge Koringame's Inns. Note, Feld's house in Castell St., now in the possession of Stephen Busher (*recte* Ussher), 1629."

No. 110. Indenture, 20 March, 22 Edward IV. (1482), whereby Robert Dowdall, knt., and Genet, his wife, let to Patrick Burnell and Philip Brentwod, proctors of St. Werburgh's, a chamber with soler, called of old Coryngham his Inns, in which Henry Fitz Rowe now dwells; in length below four royal virgates, and in breadth, four; and the soler above eight in length and four in breadth, for the life of said Genet: rent, 20 pence, silver. [Seal.]

No. 111. Counterpart of No. 110.

No. 112. Indenture, 30 Sept., 4 Henry VII. (1488), whereby Patrick Burnell and Philip Brentwod, proctors, let to Thomas Galmole *alias* Archebold, a half yndell[1] of a messuage called Coryngham's Inns (except a loft and "siller" that Dame Genet Snetterby now holds for life), for 20 years: rent, 13*s.* 4*d.*, with 7½*d.* landgable, for the first ten years; 16*s.*, with said landgable rent, for the second ten years. Should the loft and cellar become the property of the church by Genet's death, then said Thomas to have them during said term. [Seal.]

No. 113. Indenture made in the Vigil of All Saints, 11 Henry VII. (1495), whereby Thomas Asche, Dublin, baker, and James Clynton, weaver, proctors

[1] The half part (A.S.).

let to John More, tailor, a garden in the parish of St. Werburgh, between the king's castle on the east, and the cemetery of said church on the west, and land of the House of All Saints on the north and south, for 12 years: rent, 13*s.* 4*d.* silver. (*In dorso*) The church orchard by the churchyard.

No. 114. Indenture, 20 May, 15 Henry VII. (1500), whereby Christopher Cornell, armourer, and Richard Wydon, carpenter, proctors of St. Werburgh's, let to George Scurligge and Jordan Fewrell, a half indell of a messuage in Castle Street wherein they now dwell (in the other half indell Walter Colman now dwells), for 55 years; rent 10*s.* and 3¾*d.* to the mayor and bailiffs for landgable rent. [Seal.]

(*In dorso*) Said George has made over the term to John Waffyr and his assigns.

No. 115. Indenture, 20 May, 15 Henry VII. (1500), whereby the proctors let to Walter Colman, Dublin, sheerman, the half indell of a messuage in Castle Street in which said Walter lives (in the other half George Scurlagge lives) for 49 years; rent 9*s.* and 3¾*d.* for landgable rent. [Seal.]

No. 116. Counterpart of No. 115.

No. 117. Indenture, whereby Philip Whit and Roland Ferris, proctors of St. Werburgh's, let to Thomas Money, Dublin, mason, a tenement in Castle Street, wherein he now dwells, lying between Corryngham's Inns on the east, and land of the House of St. John without the new gate on the west; land [obliterated] on the north and said street on the south. To hold for [obliterated] and one years; rent 8*s.* silver, yearly. [Seal.]

Dated Michaelmas Day, 7 Henry VIII. (1515).

No. 118. Indenture, 27 September, 33 Henry VIII. (1541), whereby Master Nicholas Stanyhurst and John Elles, goldsmith, churchwardens of St. Werburgh's, let to Walter Long, yeoman, and Elizabeth Hamelen, his wife, a house in Castle Street joining to a house on the west of St. Werburgh's; on the east to a house pertaining to the church of St. Michael the Archangel, Dublin, for 41 years; rent 23*s.* 4*d.* Irish, yearly. [Seal.]

No. 119. Indenture, 25 June [obliterated] Henry VIII., whereby David Loche, goldsmith, and John Hircote, branderer, proctors, let to John Wylkens and Katherine his wife, a garden on the north side of Castle Street abutting on the east to ground of St. Werburgh's Church, and on the west to ground of St. Mary's Abbey by Dublin, for the term of the proctors in same; as in right of one Patrick Kerde; rent [obliterated] 4*d.* yearly.

No. 120. Indenture, 11 October, 35 Henry VIII. (1543), whereby Patrick Mole and John Dempsey, proctors, let to John Elles, goldsmith, a house, garden, and small lane called St. Marten's Lane, joining to the church of St. Werburgh, on the north, lying in Castle Street on the south; bounding on the east to city ground, and west to ground of the late Monastery of St. Mary's Abbey; on the south to said churchyard, and to the King's pavement on the north, for 41 years; rent, 10*s.* 4*d.* Irish, yearly.

No. 121. Indenture, 26 October, 35 Henry VIII. (1543), whereby Patrick Mole and John Dempsey, proctors, let to John Ryan, a house, in Castle Street adjoining in length to the King's pavement on the south; to Kent's ground on the north [obliterated], ground of St. John without the new gate on the west; and ground of St. Werburgh's Church on the east; also an orchard adjoining to Cowe Lane on the east church ground on the west [obliterated]. Rent 23*s.* 4*d.* yearly, grantee to build a wall of stone and lime ten feet high [obliterated] (*In dorso*) "Vacat." [Seal.]

No. 122. Indenture 8 December, 1576, whereby Thomas Smythe,[1] apothecary [and] William Whitacker proctors, let to John Durning, Dublin, gent., a ruinous house or tenement, with a garden, in the south of Castle Street in his tenure; bounding from a messuage lately belonging to the monastery of All Saints by Dublin, and now to the Mayor and Commons of Dublin, in possession of Thomas Edwards, tailor, on the east, to a messuage lately belonging to St. Mary's Abbey, now in the occupation of William Staines, smith, on the west; and from the stone wall of the churchyard of St. Werburgh's on the south to the pavement of Castle Street on the north; and also one acre and a half, arable, by Dolphin's Barn, within the tenement of Kylmaynan, County of Dublin; to hold for 70 years. Rent 26*s.* 8*d.* Irish for the first nine years; after that 30*s.* yearly. [Seal.]

Witnesses J. A. Ryan, Clement Fraunces, Yevan Meredith, Wm. Kellie.

(*In dorso*) 1730. Richard Edwarde's house. This is an ancient deed or lease of Sir Rich. Carney's holding, now Coll. Godby, of Mr. El. Dobson's house and Mr. O'Bryan's house in Castle Street; and land in Dolphin's Barn. Anne Durning, widow of J. Durning, admix. and James Durning, son to Rich. Durning, for 7*l.* paid by Rich. Edwards, release to him all their interest.

Witnesses Tho. Edwards, Ann Durning *alias* Eustace, Ja. Garstin, Mich. Osbourne.

No. 123. Counterpart of No. 122.

[1] Mayor when Trinity College was founded; he laid the first stone of the buildings.

No. 124. Indenture, 6 October, 1600, whereby Patrick Ardagh, Dublin, haberdasher, and Thomas Magwire (tailor), proctors, let to George Gwire, Dublin, merchant, a house in Castle Street called Corryngham's Inns, bounding from the land of St. Michael's Church on the east, to the church land of St. Werburgh on the west; and from the pavement on the south to Kent's land in the north, which had already been let for 61 years from 1582 by John Ellis and John Dempsie, proctors, to Richard Edwards, Dublin, clerk, To hold to George Gwire for 61 years from the end of Edwards' term, in consideration of the rent being doubled; rent 53*s.* 8*d.* yearly.

(Signed) George Guire.

Witnesses, Jo. Pullen, Bach. Jones, Henry Thomas, Ja. Longe.

No. 125. Indenture, 1 December, 1600, whereby the said proctors let in reversion to Henry Thomas, Dublin, in consideration of the rent being doubled, a house or mese in Castle Street, bounding from the pavement on the north to St. Werburgh's churchyard on the south, and from the abbey land of All Hallows now belonging to the city of Dublin on the east, to a messuage of said land on the west, let to Wm. Stayne, smith, wherein Edward Hertford, smith, lives, which had formerly been let by Thomas Smyth and William Whitt, proctors, to John Durning, Dublin, and in which Peter Blake then dwelt; and also one acre of land in Dolphyn's Barn, To hold to said Henry Thomas for 61 years from the expiration of John Durninge's term; Rent 3*l.* Irish yearly. Witnesses, Rich. Jones, Jo. Cullen, Geo. Guiere.

No. 126. Indenture, 24 February, 1604. John Lany, Dublin, cutler, and Nich. Heward, proctors, let to Sir John Tirrell, Dublin, knight, a garden in Castle Street (already demised by Patrick Ardagh and Thomas Wackfield, proctors, to John Miller, Dublin, smith), bounding from the pavement on the south to Sir Geoffrey Fynton's land and Cow Lane leading to Cock Hill on the north, in length six score feet; in breadth from William Balldwin's land on the east to Cow Lane on the west, 19 feet; To hold for four score and one year from Mich. 1598. The interest of said John Miller has now come to Captain William Meares, by surrender. In consideration that Sir John Tirrell promises to build on said garden, grantors above named let to him for 75 years from Easter next, at a rent of seven shillings, English, yearly.

Witnesses, John Hays, Peter Dermonde, Edward Tollane, Rich. Liggett, W. Chalcott, Richard Neuel, Nich. Foord, Richard Edwards, Ed. Thomas, mark of James Birne, mark of Patrick Dod, William Coyle.

(*In dorso*) 46 Castle street. Rt. Lodge.

No. 127. Indenture, 28 February, 1604, whereby John Lanny, cutler, and Nicholas Howard, proctors, let to Sir John Tirrell for [obliterated] score and fifteen years at a rent of 7*s.* a garden in Castle Street, lying from the street on the south to Cow Lane leading to Cocke Hill on the north; and in breadth from Cow Lane on the west to Baldwin's land on the east, formerly let by Patrick Ardagh and Thomas Wackfield, proctors, to John Mylles, Dublin, smith, for 81 years, whose interest is now come to Wm. Meares, Esq.

Witnesses, Edward Thomas, J. Dermonde, Patk. Ardagh, Wm. Turnor, W. Chalcott, Henry [Tille.]

No. 128. Indenture, 1 March, 1614, whereby Michael Philpott, Dublin, merchant, and Walter Dermott, saddler, churchwardens, in consideration of 42*l.* 9*s.* 5*d.* for building the church, and of an increase of 13*s.* 4*d.* rent paid by John Lany and Nicholas Howard, let to them a messuage called Corrigan's Inn House, with a garden, on the north side of Castle Street, late in the tenure of William Barnewall, Dublin, merchant, deceased, and now in that of the widow of Ralph Meilinge, deceased, from the end of the term created by lease of 14 May, 6 Edward VI., in the year 1502 (*recte* 1552), made by John Ellis and John Dempsy, proctors, for 61 years. Rent 40*s.* yearly.

Witnesses, Pat. Ardagh, Rich. Edward, Thos. Ormesby, W. Farmer, parish clarke, Ph. Cotton, Jas. Byon, James Sinott, Henry Chesshire, mark of Robert Springan, John Egerton.

No 129. Indenture, 1 March, 1614. Michael Philpott, and Walter Dermott, saddler, proctors, let to John Lany, alderman, and Nich. Howard, Esq., in consideration of the sum of 16*l.* towards the building and erection of the decayed church of St. Werburgh, the house with garden on the south side of Castle Street, late in the tenure of Thomas Edwards, tailor, deceased, and now in that of Richard Edwards his son, bounding from a messuage lately belonging to All Hallowes which Thomas Wackfeild dwelt in, to the east, to a messuage of St. Mary's Abbey, wherein Francis Fian dwells, to the west; and from the stone wall of the churchyard on the south to the street on the north; also one acre and a half in Dolphin's Barn, from the end of a lease to John Durninge: for 61 years. Rent 30*s.* yearly.

Witnesses, Pat. Ardagh, Rich. Edwards, Thomas Ormesby, W. Farmer, parish clerk, John Egerton, mark of James Byrn, Ph. Cotton, James Sinott, Henry Chesshire, mark of Robert Springan.

(*In dorso,* 1730. Deeds to Sir Rich. Carney's holding in Castle Street, now Col. Godby, in possession of El. Dobson and Mr. O'Bryan.

No. 130. Counterpart of No. 129. [Seals.]

No. 131. John Lany, alderman, and Anne Howard, Dublin, widow and executrix of Nicholas Howard, during the minority of her son, William, and in consideration of 40*l.* English, paid by him, grant to Henry Cheshier, Dublin, goldsmith, Corrigan's Inns House, with garden, on the north side of Castle St. (granted on 14 May, 1552, by John Ellys, Dublin, goldsmith, and John Dempsy, proctors, for 61 years, at a rent of 40*s.* Irish, yearly; and again on 1 March, 1614, let to farm, on the expiration of said lease, by Michael Fylpot and Walter Dermott, proctors, to John Lany and Nicholas Howard), at said rent to be paid to the proctors. 26 July, 1620. Witnesses, E. Mearing, Ed. Beaghan, Fras. Archere, N.P. [Seal.]

No. 132. Matthew Tirrell, Dublin (reciting a previous assignment, and that Susan Cheshire, widow and administratrix of Henry Cheshire, by deed of 14 July, 1624, had assigned the premises to him at the same rent), in consideration of £100, grants the reversion to Stephen Ussher, Dublin, merchant. 3 Oct. 1626. Witnesses, Charles Forster, Thomas Burnell, Christ. Browne.

No. 133. Not forthcoming.

No. 134. Lease, 26 March, 1635, John Bisse, recorder of Dublin, and Stephen Stephens, proctors, to Stephen Ussher (recites a deed of 6 July, 1624, by which Susanna Cheshire, administratrix of Henry Cheshire, granted same to Matthew Terrill, who by deed of 3 Oct., 1626 (No. 132), demised same to Stephen Ussher). Now, in consideration of a surrender by him, and of a table-cloth of holland given by him for the communion table of St. Werburgh's Church, value 3*l.*, the proctors above named grant the premises to him (Stephen Ussher) for 61 years from the expiration of the first lease, at a rent of 40*s.*

(*In dorso*) Term of 61 years to begin 1643, determining 1704.

No. 135. Counterpart of a lease, 15 Augt., 1668, Richard Yonge and George Stoughton, grant to Richard Carney, Esq. (in consideration of the surrender of a lease formerly made to John Lanye, alderman, and Nicholas Howard, Dublin, for 61 years, nearly forty years of which are unexpired, and in which Carney has an interest for the remainder of the term; and also in consideration of 1*l.* 2*s.* 6*d.* rent reserved by it, which is now to be doubled), all the tenements and houses in which Carney and William North, girdler, dwell (formerly but one house), on the south side of Castle St., bounded east by the tenement formerly belonging to All Saints, but now belonging to the city, known by the name of the "Bear and Ragged Staff": on the west by the tenement formerly belonging to St. Mary's abbey and now to the city, lately occupied by Anthony Derry, glover; on the north by Castle St., and

south by the churchyard, 31½ feet in length in front; 37 feet in back next the churchyard; and in breadth 56 feet; also 1½ acre arable land by Dolphin's Barn, within the tenement of Kilmainham; for 99 years, at a rent of 45*s.* yearly, for the use of the parish.

No. 136. Indenture, 17 Feb. 1675, whereby Thomas Speght, Dublin, merchant, and Robert Tanner, innholder, churchwardens, lease to John Bysse, Esq., Lord Chief Baron, in consideration of his having paid 10*l.* for the repair of St. Werburgh's Church, Corrigan's Inn House, now known by the sign of the "Castle," on the north side of Castle Street, in front to the pavement from east to west, 24 feet 2½ in., and from said front or west of said premises towards the London Tavern backwards, including the brick house, parcel of same, 76 feet 9 in.: bounded on the west by a house and entry now in the hands of George Stoughton; on the north with part of the London tavern; on the east by the messuage in which John Price resides; and on the south by the street. To hold from the expiration of a lease now in being of 25 March, 1635, made by the then churchwardens, to Stephen Ussher, for 61 years from 1643, and determining Mich. 1704, when this begins. Rent 3*l.* yearly.

Witnesses, E. Wetenhall, curate, Enoch Reader, Richard Lord, Rich. Carney, George Stoughton, J. Northest, Samuel Cuthbert, Wm. Hartley, Robert Starkye, Robert Peppard, Will. Pridham.

SKINNERS' ROW.

No. 137. Thomas Faucoun releases to Stephen Spark,[1] chaplain, a messuage in the Skinners' street, parish of St. Werburgh, Dublin, which he has of the feoffment of William, son of Roger de Kildare, lying between the land of the Prior and Convent of All Saints, near Dublin, [on the east], and land of [John] Passavant, citizen [on the west], in length from said street in front to the lane behind the church of St. Nicholas [formerly called Shoemakers'] Street, behind.

Dublin, [obliterated] Edward III. and of France the 10 (1346–7). [Seal.]

No. 138. Richard Harborgh, skinner, and Agnes Holme, his wife, release to Thomas Spark,[1] chaplain (as in No. 137).

Dublin, May [oblit^{d}.] Rich. II.

No. 139. Thomas Sparke, chaplain, releases and quits claim to Philip Kendyrgane, citizen (as in No. 137). [Seal.]

Dublin, 20 July, 21 Rich. II. 1397).

[1] Mentioned in Christ Church Deeds.

No. 140. Philip Kendyrgane grants to Thomas Clane, citizen (as in No. 137). Witnesses, William Martyne, chaplain; John Wrothy, tailor; John D[torn]e, barber; Thomas Blake.

Dublin, 10 Nov., 22 Rich. II. (1398). [Seal.]

(*In dorso*) Evidences concerning John Hatton's [ ] in the Skynner rowe [wherein] Thirston Anderton nowe dwelleth.

No. 141. Release (as in No. 140).

12 Nov., 22 Rich. II. (1398). [Seal.]

No. 142. Thomas Clane, citizen, grants to Walter Reske and John [Champneys, chaplain], a messuage wherein he now dwells (as in No. 140), for ever.

Witnesses, Thomas Cusake, mayor; Thomas Shorthals, John White, bailiffs; Roger Foyll, Stephen Sale, David Randolff, tailor. 1 December, 3 Henry V. (1415).

No. 143. Release (as in No. 142). Same witnesses. 2 Dec., 3 Henry V. (1415). [Seal.]

No. 144. Release. Walter Reske, chaplain, to Thomas Clane (as in No. 140). 10 Aug. [torn.] [Seal.]

No. 145. Thomas Clane grants to Nicholas Priour, citizen and goldsmith, Dublin, a messuage in Skinners' Street (as before), in length from said street towards the north to a street called Behynd Street towards the south, for ever. 28 Aug., [10] Henry VI. (1432). [Seal.]

No. 146. Same to same (as in No. 145). [Seal.]

29 Aug., 10 Henry VI. (1432).

No. 147. Thomas Clane makes John Donne, skinner, his attorney to place Nicholas Priour in seisin. [torn] Aug., 10 Henry VII. (1432). [Seal.]

No. 148. Matilda Mauncell, late wife to Thomas Clane, citizen of Dublin, releases and quits claim to Nicholas Priour, goldsmith, all actions, &c.

11 [torn] H [torn].

No. 149. Nicholas Priour releases and quits claim to Walter Molghane, citizen, to a messuage in the Skinners' Row, between the messuage of the Prior and Convent of All Saints on the east, and the messuage formerly John Passavant's (clerk) on the west; said street on the north, and Sutor Street on the south. 22 Aug., 20 Henry VI. (1442).

No. 150. Grantor in No. 149 makes John Seys his Attorney to place grantee in seisin. 2 [ ] Aug., 20 Henry VI. (1442). [Seal.]

No. 151. Walter Molghane, corviser and citizen, grants to John Sprot, chaplain, and Thomas Laundeys, chaplain, a messuage in Skinners' Street, between land of John Heigham and Juliana, his wife, towards the west, and land of the Prior and Convent of All Saints towards the east; said street towards the north, and a lane, formerly le Sutteres Lane, now Behynd Street, towards the south, for ever. [ ] Feb., 4 Edw. IV. (1465). [Seal.]

No. 152. Same to same. Release, 16 Feb., 4 Edw. IV. (1465).

No. 153. Grantor in No. 151 makes Nicholas Bellewe, clerk, his attorney to place grantees in seisin. 14 Feb., 4 Edw. IV. (1465). [Seal.]

No. 154. Thomas Launcley, chaplain, grants to Richard Herford, John Mestaylle, and Robert Boys, chaplains (as in No. 151). 20 June, 1470.

(*In dorso*) "Davy Roche's house in the Skynner Rewe."

No. 155. Grantor in No. 154 makes Nicholas Bellewe clerk, his attorney to place grantees therein in seisin. 20 Jan., 1470. [Seal.]

No. 156. Indenture, whereby Thomas Foyll, son of John Foyll, late citizen of Dublin, to farm lets to John Hore merchant, a messuage in Skinners Street lying between Skynner Rowe in front in length up to the Sutteres lane behind, in breadth from land called that of Nicholas Tynbeigh on the east to land formerly belonging to Christopher Russell, tailor, but now to said Thomas, on the west, for 50 years. Rent for the first five years a grain of corn and for the residue of the term 12 shillings, silver, yearly. Said John and his heirs will repair and build, except 14 feet for the little bawn, where it shall seem most expedient in the back part of said messuage.

10 June, 10 Edward IV. (1470).

No. 157. Indenture 2 March, 5 Henry VIII. (1514), whereby Margaret Allegan, daughter and heir to Patrick Allegan, shoemaker and citizen, to farm lets to James Eustas, Dublin merchant, and his wife, a house in Skynner Rowe between the land of the Prior and Convent of all Saints by Dublin, on the east and land of Stannyst of said city on the west: from Souters' lane on the south, to the pavement of said Rowe, on the north, for 21 years. Rent, 3*s.* 4*d.*, silver.

No. 158. Counterpart of No. 157.

No. 159. Indenture 2 September, 35 Henry VIII. (1543), whereby

[obliterated and John] Ellys, proctors of St. Werburgh's and the parishioners demise to David Roche, Dublin, a house lying in length from Skynner Row to a lane leading to St. Nicholas' Church in the south; and in breadth from All Hallows' ground [torn] west side; also a garden in Castell Street [torn] in the south to Cow Lane leading to Cork Hill in the north; and in breadth lying from James [torn] to St. Mary's Abbey ground in the east; for 41 years. Rent [torn]. (*In dorso*) The Indentures of the houses in the South Row. [Seal.]

No. 160. Deed, 1 April, 1662, Enoch Reader, Dublin, merchant, and Henry Hickes, Lazy Hill, cooper, churchwardens of St. Werburgh's, to Sir William Dixon, Dublin, Knt. (recites lease, 28 February, 1604, John Lany, Dublin, cutler, and Nicholas Howard, formerly churchwardens, to Captain William Meares, of a house and garden in Skinners' Row, in length from the Row on the north to the Curriers' Lane leading to St. Nicholas' Church, on the south, and from All Hallows' ground on the east to Caddell's ground on the west. To hold for 75 years, at a rent of 19*s.* 8*d.*) The interest of Meares came to Sir Robert Dixon, and is now vested in Sir Wm. Dixon, his exor., who hereby surrenders the residue of 18 years unexpired, in consideration of 70*l.*, to be expended on raising an additional building to the parish church, for enlarging it. He is now granted to the end of the term and 71 years, at a rent of 20*s.*

IX.

THE ANCIENT LIST OF THE COARBS OF PATRICK.

By REV. H. J. LAWLOR, D.D., Litt.D.,

AND

R. I. BEST.

[Read May 26. Published December 23, 1919.]

More than half a century ago Dr. Todd published four early lists of the Coarbs of Patrick.[1] They are preserved in the following manuscripts:—

L. The Book of Leinster (T.C.D., ms. H. 2. 18), f. 21, *c.* 1160.[2]

It is unfortunate that in his edition of this list Dr. Todd did not print the Irish text, but contented himself with giving an English translation of it. Part of the leaf of the ms. which contains it is now sadly discoloured. The transcriber of the Facsimile edition (1880) made some serious mistakes, and failed to read words which he might have been able to decipher if he had made use of Todd's rendering. The list was printed by Dr. Whitley Stokes in 1887;[3] but he followed the Facsimile, correcting it here and there from Todd, but apparently making no use of the manuscript. In these circumstances it has been thought well to print as an appendix to this paper a fresh edition based on a careful examination of the manuscript.

Y. The Yellow Book of Lecan (T.C.D., ms. H. 2. 16), p. 327c. End of fourteenth century.[4]

B. Leabhar Breacc (Royal Irish Academy, ms. 23 P. 16), p. 220. End of fourteenth century.[5]

O. Bodleian Library, Oxford, ms. Laud 610, f. 115rb, ve. 1454.[6]

The O list has been accurately printed by K. Meyer in the *Zeitschrift für Celtische Philologie*, vol. ix, pp. 478f, 481f. It was transcribed from the *Saltair Caisil*.[7] In the manuscript it is divided into two parts. The first

[1] J. H. Todd, *St. Patrick, Apostle of Ireland*, 1864, pp. 174, 177, 179, 180.

[2] Todd, *War of the Ghaedhil with the Gaill*, p. ix; R. Atkinson, *Facsimile of Book of Leinster*, Int., p. 7.

[3] *Tripartite Life of Patrick* (R.S.) ii, 542.

[4] See Facsimile edition, Int., p. 2.

[5] Facsimile edition, Int., p. xix.

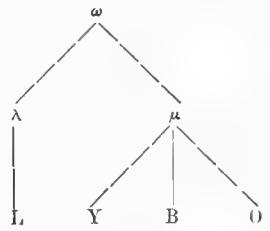
[6] Stokes, *Martyrology of Oengus*, 1905, p. xv.

[7] Stokes, l.c.; O'Donovan, *Book of Rights*, p. xxxiii.

part (nos. 1–24) is in the second column of f. 115r, on which page the first column gives a list of kings of Ireland, and the third a list of kings of Cashel. It has no title. The second part (nos. 25–51) is on f. 115v, and is entitled *Do Chomarbaib Pátraic.*

These four lists are almost identical in scheme. The names of the coarbs are arranged in what purports to be chronological order. To each name, with some exceptions, due no doubt to accidental omission, is added a number, with or without the word *annis* or its Irish equivalent, indicating the period of office of the coarb. There are also occasional notes giving genealogical or historical information. An examination of the lists, in fact, convinces us that they are merely recensions of an earlier catalogue, which have been brought up to date, in at least three instances, by the addition of names at the end. We may therefore treat LYBO as copies of the same document, and endeavour, by combining them, to restore the Ancient List of the Coarbs of Patrick at Armagh.

From this resultant list, set out below, it will appear that on several occasions L stands alone against the unanimous consent of YBO.[1] This suggests that the latter group is derived from an ancestor independent of the exemplar of L. The relation between the manuscripts may therefore be represented thus, omitting intermediate links :—



We shall also observe that the notes in YBO are fewer than those in L, and that they are not often in full agreement with each other, nor with the notes in L. Since the L notes appear, at least in some instances, to have come from the original list,[2] this phenomenon is best explained by the hypothesis that in the ancestor of YBO the notes were omitted. It will follow that the notes in those manuscripts, when they differ from L, are of later date, and of less authority, than the notes in L.

In the following list the numeral indicating the period of office is always placed opposite the name to which it belongs, the word *annis* or *bliadhna* being always omitted. In the MSS. the numbers are in various positions, sometimes above the line of writing. The variants of the MSS. are recorded

[1] See nos. 20, 26–29, 31–34, 41, 42.

[2] See below, p. 353f.

in foot-notes, but no notice is taken of slight differences in the spelling of names. The names are numbered with arabic figures to facilitate reference. In the notes from the Annals Ard Macha is often indicated by the letter A.[1]

Notes from the Annals.	Comarbada Pátraic.[2]	Translation of Notes.
433. Patricius peruenit ad Hiberniam. AU.	**1. Pátraic xu.**[3] luiii. o thuidecht Patraic i nHerinn co eistecht L. cxx.mo etatis sue quieuit B.	luiii (years) from the coming of Patrick into Ireland to his death.
445. Ard Macha fundata est. AU.		
462. Hic alii quietem Patrici dicunt. AU.		
439. Uel quod hic debet inseri Secundus cum sociis secundum alium librum. AU.	**2. Sechnall xiii.**[4] mac Restituit L.	Son of Restitutus.
440. Secundus, Auxilius et Serninus mittuntur et episcopi ipsi in Hiberniam in auxilium Patricii. AU.		
448. Quies Secundini. AU.		
458. Quies senis Patricii ut alii libri dicunt. AU. Aug. 24. 'dear fosterer of our sage,' Oengus.	**3. Sen-Pátraic**[5] **x.**[6]	
468. Quies Benigni episcopi (+ successoris Patricii ms. B). AU.	**4. Benén x.**[7] mac Sescnen LB. salmcetlaid Patraic do Chianachta Glinde Gaimen do síl Taidg meic Cein ó Chaissil dó B.	Son of Sescnén. Psalm singer of Patrick; of the Chianachta of Glenn Gaimen, of the race of Tadg, son of Cian, from Cashel was he.

[1] AU = Annals of Ulster. AT = Annals of Tigernach. AI = Annals of Inisfallen. AFM = Annals of Four Masters. Cs = Chronicon Scotorum. *Frag. Ann.* = *Three Fragments of Annals of Ireland*, ed. J. O'Donovan (Ir. Arch. and Celt. Soc.), 1860. German = *Martyrology of German*, ed. Stokes. Oengus = *Martyrology of Oengus*, ed. Stokes, 1905. The dates are corrected in all cases

[2] De Chomarbaib Patraic in so B) BO; *om.* Y. In O the heading is placed before no. 25.

[3] Y only. [4] ui O. [5] *om.* B. [6] ii L. [7] *om.* B.

Notes from the Annals.	COMARBADA PÁTRAIC.	Translation of Notes.
482. Quies Iarlathi mic Trena tertii episcopi Ard Machai. AU. 'Iarlaithe [of Tuam], son of Lug, son of Trén.' Stokes, *Lives of Saints from Book of Lismore*, p. 251.	**5. Iarlaithe xiiii.**[1] mac Trena o Chluain Fiacla L. mac Loga B.	Son of Trén from Clonfeacle. Son of Lug.
492. Dicunt Scoti hic Patricium archiepiscopum defunctum. AU.	**6. Pátraic**[2] **iiii.**	
493. Patricius archiapostolus Scotorum quieuit c^mo^xx^o^ anno etatis sue, 16 Kal. Aprilis, lx° autem quo uenit ad Hiberniam anno ad baptizandos Scotos. AU.		
497. Cormacci episcopi Ard Macha heredis Patricii quies (+ epscop Cormac Crich innd Ernaidhe. MS. A marg.). AU.	**7. Cormac xu**[3]. primus abbas de Chlaind Chernaig L.	First abbot. Of the Clann Chernaig.
513. Dubthach (from Druim Dearbh, *not in* MS. B), bishop of A., obiit. AU. Abbot of A. CS.	**8. Dubthach xui.**[4]	
526. Ailill, bishop of A. quieuit (+ of the Ui Bressail MS. A marg.). AU.	**9. Ailill**[5] **primus**[6] **xiii.**	
536. Ailill, bishop of A. obiit. AU. Abbot of A. AT.	**10. Ailill**[5] **secundus**[6] **x.** ó Druim Chád i nHúib Bressail don da Ailill L.	From Druim Chád in Húi Bressail were both the Ailills.
548. Dubtach or Duach, of the race of Colla Uais, abbot of A., quieuit. AU.	**11. Duach**[5] **xii**[7]. de Huib Turtri L.	Of the Húi Turtri.

[1] xuiii O. [2] Y only. [3] xii L. [4] xiii L, xiiii Y, xxiiii B.
[5] These three names are omitted in B, obviously by homoeoteleuton.
[6] L only. [7] L only.

Notes from the Annals.	Comarbada Pátraic.	Translation of Notes.
551. Quies Dauidis Farannaini (+ filii Guaire descendant of Faranan, MS. A) episcopi A. et legati totius Hibernie. (*The entry is omitted in* MS. B.) AU.	**12. Fiachra x.**[1] mac Colmain meic Eogain a hEnuch Senmáil L.	Son of Colmán, son of Eogan, from Enach Senmáil.
578. Feidilmidh Finn abbot of A. quieuit. AU.	**13. Feidilmid**[2] **xx.**[3] hua Faelain o Domnuch Nemand L.	Descendant of Faelán from Domnach Nemand.
588. Quies of Carlaen bishop of A. (+ Ciarlaech from the territory of the Ui Niallain, MS. A marg.). AU.	**14. Cairellán**[4] **x.**[5] o Domnuch meic hu Garba dÚib Nialláin L.	From Domnach maccu Garba in Ui Nialláin [bar. of Oneilland W., Co. Armagh.]
598. Eocho abbot of A. quieuit. AU.	**15. Eochaid x.**[6] mac Diarmata o Domnuch Rigdruiñg L.	Son of Diarmait from Domnach Rigdruing.
610. Senach (from Cluain u Aingrighi *not in* MS. B) abbot of A. quieuit. AU.	**16. Senach xii.**[7] Garb o Chluain hui meic Gricci de Uib Niallain, edón gobai i ngraid o Chill Móir L.	The rough, from Cluain húi meicc Gricci of the Ui Nialláin, i.e. the smith in orders from Kilmore [Kilmore in bar. of Oneilland W., Co. Armagh ?].
623. Quies mic Lasre abbatis A. AU. 12 September. Gorman.	**17. Mac Laisre xiiii.**[8]	
661. Tommene (+ son of Ronan MS. A *gloss*) bishop of A [died.] AU. 10 January. Gorman.	**18. Tómine xxxu.**[9]	
688. Quies Segeni, from Achadh Claidib, episcopi A. AU. 24 May. Gorman.	**19. Segine xxuii.**[10] mac Bresail ó Achud Chlaidib L.	Son of Bresal from Achad Chlaidib.

[1] *om.* YO, xx (from no. 13) B.

[2] *om.* B. That the name was in the exemplar of B is shown by the fact that the terminal number remains: see note 1.

[3] xu L. [4] Caurlan L, Caerlan O. [5] iiii L. [6] iii L, xu Y, *om.* O.

[7] xiii L, xu B, *om.* O. [8] xuiii L, *om* O. [9] lxxxiii L, *om.* O. [10] xxui B, *om.* O.

Notes from the Annals.	COMARBADA PÁTRAIC.	Translation of Notes.
	20. Forannán[1] **i.**	
715. Flann Febla (+ son of Scannlan, of the Ui Meith, MS. A marg.), abbot (bishop, MS. A marg.) of A. [died.] AU.	**21. Flann Febla xxuii.**[2] mac Scanlain hua Fingin L. mac Scannaill edón dalta Berchain meic Micain B.	Son of Scannlan; grandson of Fingen. Son of Scannall i.e. fosterling of Berchán, son of Micán.
730. Suibne nepos Mruichesaich (+ alias son of Crunnmail, MS. A) episcopus A. [dormiuit.] AU. 21 June. Gorman.	**22. Suibne xu.** mac Crunnmael meic Ronain dUib Niallain L. in sui B.	Son of Crundmael, son of Rónán of Ui Nialláin. The sage.
750. Quies of Congus bishop of A. AU. He was of the race of Ainmire. AFM.	**23. Congus xx.** scribnid. unde torad penne Congusa edón hui Da sluaiga (*sup. lin.* edón mensa)[3] meic Ainmerech a Cuil Athgoirt L.	Scribe; whence 'the fruit of Congus's pen,' i.e. descendant of Dá Slúaig (i.e. mensa) son of Ainmere from Cul Athguirt.
758. Céle Petair (+ from Crich Bresail, MS. A) abbot of A. [died.] AU.	**24. Céle Petair uiii.**[4] o Druim Chetna i nHuib Bresail L.	From Druim Chétna in Húi Bresail [in bar. of Oneilland E., Co. Armagh.]
768. Fer dá Crich, son of Suibhne, abbot of A. quieuit. AU. He was a son of Suibhne, son of Ronan, son of Crunnmael. AFM.	**25. Fer dá Chrích x.**[5]	
791. Cú Dinaisc, son of Conasach, abbot of A. [died.] AU.	**26. Cú Dínisc**[6] **iiii.** mac Concais hui Cathbath meic Echach L.	Son of Concas, descendant of Cathbath, son of Eochaid.
783. Promulgation of Cáin Pátraicc in Cruachu by Dubh dá Lethe and by Tipraite, son of Tadhg. AU.	**27. Dub dá Lethe**[6] **xuiii.**[7] mac Sinaig L.	Son of Sinach.

[1] L only. [2] xxiiii Y. [3] See below, p. 360, note 3. [4] uii Y. [5] *om.* Y.
[6] The order of the names in YBO is Foendelach, Dub dá Lethe, Airechtach, Cú Dínisc.
[7] xu O.

Notes from the Annals.	Comarbada Pátraic.	Translation of Notes.
793. Dubh dá Lethe, son of Sinach, abbot of A. [died.] AU.		
794. Airectach hua Faelain (o Fhleadhaigh, MS. B), abbot of A. and Affiath episcopus of A. in pace dormierunt in una nocte. AU.	**28. Airechtach**[1] **i.** hua Faeláin dUib Bresail L.	Descendant of Faelán of Ui Bresail.
793. Profanation of Faendelach by **Gormghal**, son of **Dindanach**; and the preying and spoiling of A. and the killing of a man there by the Ui Cremthainn. Receptio Foindelaigh iterum in A. AU.	**29. Foendelach**[1] **iii.**[2] mac Moenaig Mannacta is e docer la Dub da Lethi oc Rus Bodba unde dicitur: Faendelach aness. is é a less. teclaim sluaig Dub da Lethi mac Sinaig do fail co rigaib a tuáid L.	Son of Moenach Mannachta. It is he who fell by Dub dá Lethi at Ros Bodba; whence it is said, Faendelach from the South His advantage is in the mustering of a host Dub dá Lethe, son of Sinach Is at hand with kings from the North.
795. Foendelach, son of Meanach, abbot of A. subita morte periit. AU. Foendelach died, after Dubh da Lethe had been in contention with him about the abbacy first, and after him **Gormghal**. AFM.		
799. Lex Patricii over Connaught by **Gormgal**, son of Dindatach. AU.	**30. Connmach xiiii** [*or* **xiii.**][3] mac Duib da Lethi is e sin in mac i ndiaid a athar ut prophetauit Bec mac De. L.	Son of Dub dá Lethe. That is the son after his father, as Bec mac Dé prophesied.
804. Congressio senatorum nepotum Neill cui dux erat Condmach, abbas of A. in Dun Cuair. AU.		
806. **Gormgal**, son of Dindagad, abbot of A., and Cluain auis obiit. AU.		
807. Condmach, son of Dub dá Lethe, abbot of A. subita morte periit. AU.		

[1] See note 6, p. 321.

[2] x Y, u B.

[3] xiiii O, xui Y, xiii LB.

Notes from the Annals.	COMARBADA PÁTRAIC.	Translation of Notes.
758. Gorman, coarb of Mochta of Louth, *i.e.* father of Torbach, coarb of Patrick. It is he that lived for a year on the water of Fingen's well in Clonmacnois, and died in pilgrimage at Cluain. AT.	**31. Torbach**[1] **i.**	
808. Obitus Torbaigh (Caluaich, MS. B; + alias Calbhaich from Cluain cracha, MS. A, *gloss*) scribae abbatis of A. AU. Torbach, son of Gorman, scribe, lector and abbot of A. He was of Cinel Torbaigh, i.e. the Ui Ceallaigh Breagh; and of these was Conn na mbocht. AFM. Ferdomnach hunc liberum [. . .]e dictante Torbach herede Patricii scripsit *Liber Armach.*, f. 53 v.		
809. Dormitatio Toictich (Taichligh, MS. B; + alias Taichligh from Tir Imchlair, MS. A), abbatis A. AU. Toictheach ua Tighearnaigh, of Tir Iomchlair, abbot of A, died. AFM.	**[32. Toichtech i.]**[2]	
811. Nuadha abbas A. migrauit to Connaught cum lege Patricii et cum armario eius. AU.	**33. Nuada**[1] **iii.**	
812. Nuadha of Loch Uamha episcopus et anchorita, abbas A. dormiuit. AU.		
818. Artri airchinnech (*om.* AFM; princeps, CS) of A., went to Connaught with the shrine of Patrick. AU, AFM, CS.		

[1] L omits Torbach, Nuada, and Mac Loingsig, doubtless by homoeoteleuton (conɔmach : loinɔsich).

[2] LYBO *om.*

Notes from the Annals.	Comarbada Pátraic.	Translation of Notes.
823. Lex Patricii over Munster by Feidhlimidh, son of Crimthan and by Artri, son of Concobhar (+ i.e. bishop of A., ms. A.) AU.		
825. Lex Patricii over the three divisions of Connaught by Artri. AU.		
826. Mac Loingsigh abbas A. in pace obiit. AU. Flannghus mac Loingsigh. AFM. Fergus mac Loingsigh. CS.	**34. Mac Loingsig[1] xiiii.[2]**	
826. Profanation of Eoghan Mainistreach as to the primacy (prioṁhaidecht) of A.; for Cumasgach, son of Cathal, lord of Airghialla, forcibly drove him from it, and set up Airtri, son of Concobhar, half-brother of Cumasgach by the mother, in his place. Eoghan possessed the *ard comarbus* of Patrick for nine years afterwards through the power of Niall Caille. AFM.	**35. Artri ii.** Is é rachoid martra ó Eogan ⁊ ó Niall ⁊ ó Suibni mac Sarnig (*l.* Farnig) L.	It is he who underwent martyrdom from Eogan and Niall and Suibne, son of Farnech.
919. Bellum by Gentiles at Dubhlinn over Gaedhil, in which fell Niall (i.e. Glundub). AU.	**36. Eogan Manistrech uiii.** Eogan mac Anbthig comarba Patraic ⁊ Finniain ⁊ Buite anmchara Neill Glunduib L.	Eogan, son of Anbthech coarb of Patrick and Finnian [i.e. of Clonard] and Buite [i.e. of Monasterboice], confessor of Niall Glundub.
880. **Suibhne**, son of Forannan (son of Fairnech, ms. A) abbas duorum mensium in A. obiit. AU. **Suibne**, son of Farnech, abbot of Daimhinis, quieuit in A. CS.	mac (*l.* comarba) Buti (*sup. lin.* meic) Bronaig B.	Coarb of Buite (son of) Bronach.
831. Profanation of Eogan	Trí airchinnig sunna ragabsat abdaine ar ecin nach armiter i n-offriund edón Fland Rói mac Cummascaig. meic Con-	Three erenachs here who took the abbacy by force, who are not mentioned at mass, i.e. Fland Rói, son of

[1] See note (1) last page. [2] xuii Y, xiii B.

Notes from the Annals.	COMARBADA PÁTRAIC.	Translation of Notes.
Mainistrech, abbot of A., by Conchobar, son of Donnchad, when his community were made prisoners and his herds were carried off. AU.	chobair ro éig assin charpat. et Gormgal mac Indnotaig L.	Cummuscach, son of Conchobar, who shouted out of the chariot, and Gormgal, son of Indnotach.
833. Artri, son of Conchobar, abbas A., et Conchobar, son of Donnchad, rex of Temhair, uno mense mortui sunt. AU.		
834. Eogan Mainistrech, abbot of A., and Cluain Iraird [died]. AU.		
835. A change of abbots in A., i.e. Forinnán (+ from Rath-mic-Malais, *gloss*) in the place of Dermot húa Tighernain. AU.	**37. Forannán xuiii** [*or* **xuii.**][1] mac Murgili Murgel nomen matris eius L.	Son of Murgel; his mother's name was Murgel.
836. The taking of the oratory in Cill-dara against Forinnán, abbot of A., with Patrick's congregation besides, by Fedhlimidh, by battle and arms; and they were taken prisoners. . . . Dermait went to Connaught cum lege et uexillis Patricii. AU.	**38. Dermait iiii.**[2] hua Tigernain. Is leis daratad in t-anart etir na gae ac Croiss Ardachaid ⁊ in t-imaire lossa ⁊ nir rathcha coro lobsat ar met a smachta L.	Descendant of Tigernán. It is by him the winding-sheet was placed between the spears at the Cross of Ardagh and the ridge of leeks, and they did not . . . so that they decayed owing to the greatness of its power.[3]
839. A change of abbots, i.e. Dermait hua Tigernaigh in the place of Forinnán. AU.		
845. Forinnán, abbot of A., was taken prisoner by Gentiles in Cluain comarda with his reliquaries and his community, and carried off by the ships of Limerick. AU.		

[1] xuii L, xiiii BO. [2] uii Y. [3] See below, p. 361, note 12.

Notes from the Annals.	Comarbada Pátraic.	Translation of Notes.
846. Forinnán, abbot of A., came back from the lands of Munster. AU.		
848. A change of abbots, i.e. Diarmait in uicem Forinnán. AU.		
851. A royal meeting in A. between . . and Diarmait and Fethgna, with the congregation of Patrick. AU.		
852. Duo heredes Patricii, i.e. Forinnán scriba et episcopus et anchorita et Dermait sapientissimus omnium doctorum Europae quieuerunt. AU.		
856. Quies Cathasaich, abbatis A. AI. Cathasach, abbot of A., moritur. *Frag. Ann.* iii.	**39. Fethgna xxii.**[1] edón Figlech mac Nectain de Claind Echdach L.	i.e. of the vigils, son of Nechtan of the Clann Echdach.
859. A royal assembly at Rath Aedha mic Bric . . . including Fethgna, coarb of Patrick. AU.		
874. Fethgna episcopus heres Patricii et caput religionis totius Hiberniae in pridie nonas Octobris in pace quieuit. AU. February 12. Gorman.		
877. A change of abbots, i.e. Ainmire in uicem Maelcobha. AU.	**40. Ainmire i.** hua Faelain. iserígi h. Niallain ⁊ sacerdoti Aird Macha. L.	Descendant of Faelán . . . kingship of húi Nialláin and priesthood of Armagh (Stokes).[2] . . . .
879. Maelcobho, son of Crunnmael, princeps of A., was taken prisoner by foreigners. AU.	**41. Mael Coba[3] u.** mac Crundmael de muntir Cilli Moire L.	Son of Crundmael of the community of Kilmore.

[1] xxu LYB.

[2] The order of names in YOB is Cathassach, Mael Coba.

[3] See below, p. 361, note 14

Notes from the Annals.	COMARBADA PÁTRAIC.	Translation of Notes.
Ainmeri princeps ix mensium in Ard Macha dormiuit. AU. He had been thirty years a priest before that time. AFM.		
883. Cathasach, son of Robartach, princeps of A., in pace quieuit. AU. princeps and episcopus. CS. Son of Fergus. AI.[2]	**42. Cathassach iiii.**[1] mac Rabartaich hui Móinaich dé Chlaind Shuibni. marb na ailithre i nInis [ ] L.	Son of Robartach, grandson of Móenach of the Clann Suibne, died in his pilgrimage in Inis [ ].
888. Maelcobha, abbas of Ard Macha, uitam senilem finiuit. AU. He was of the family of Cill-mor. AFM.		
927. Maelbrigte, son of Tornan, coarb of Patrick and Colum Cille felici senectute quieuit. AU. coarb of Patrick and Colum Cille and Adamnan. AFM. Feb. 22. He was of the race of Conall Gulban, son of Niall. Saerlaith, daughter of Cuilebaith, son of Baothghal, was his mother. *Mart. of Donegal.* Cp. LL. 372*d* 31.	**43. Maelbrigti xxxix.**[3] mac Tornain LBO. comarba Patraic ⁊ Coluim Chille de Chlaind Chona[ill] edón na hoentad L.	Son of Tornán. coarb of Patrick and Colum Cille of the Clann Chonaill, i.e. of the union (?)
936. Joseph, princeps A., episcopus et sapiens et ancorita in senectute bona quieuit (of the Clann Gairb Gaila MS. A marg.) AU.	**44. Joseph ix.** mac Fathaig de Chlaind [ ]b Gaelta di Dal Riattai L.	Son of Fathach of the Clann [Gair]b Gaelta[4] of Dal Riada.
936. Maelpatraic, son of Mael Tuile, princeps of A., in senectute quieuit. AU. Five months in the abbacy when he died. AFM. a bishop. CS, AFM.	**45. Mael Pátraic i.** mac Maili Tuli .h.(?)[ ] L.	Son of Mael Tuile.[5]

[1] uii Y. [2] See below, p. 350, note 1. [3] xxix Y.
[4] See below, p. 361, note 24. [5] See below, p. 361, note 26.

Notes from the Annals.	Comarbada Pátraic.	Translation of Notes.
957. Cathasach, son of Dulgen, from Druim Dorraidh, coarb of Patrick, learned bishop of the Goidhil, in Christo Ihesu pausauit. AU.	**46. Cathassach xx.** mac Doligen hui Eog-[ain] L. mac Fergusa Y.[1]	Son of Doligen, descendant of Eogan(?). Son of Fergus.
960. Muiredhach, son of Fergus, made a full visitation of Connaught. AU.	**47. Muredach ix.** mac Fergusa LYB. o Glinn Airind i Sleib Culinn L.	Son of Fergus. from Glenn Arind in Slieve Gullion.
965. A change of abbots, i.e. Dubhdalethe in uicem Muiredach of Sliabh Cuilinn. AU.		
966. Muiredach, son of Fergus, coarb of Patrick, [died.] AU. ui. annis in principatu. CS.	**48 Dub dá Lethe xxxiii.**[2] mac Cellaich LYBO. Deolaid ingen Maeli Tuli meic Se[ ] o Inis Cain Dega mathair Duib da Lethi L.	Son of Cellach. Deolaid, daughter of Mael Tuile, son of Se[ ] from Inis Cain Dega [Iniskeen, bar. of Farney, Co. Monaghan] was the mother of Dub dá Lethe.
973. Dubhdalethe, coarb of Patrick, on a visitation of Munster. AU. (*fuller account in* AI s. a. 955).		
989. Dubhdalethe assumed the *comarbus* of Colum Cille with the consent of the men of Ireland and Alban. AU.		
993. Muirecan from Bothdomnaigh, coarb of Patrick, on a visitation in Tir Eoghain, where he conferred the degree of king on Aedh, son of Domnall, in the presence of Patrick's congregation, and made a full visitation of the North of Ireland. AU.		
998. Dubhdalethe, coarb of Patrick and Colum Cille, lxxxiii° anno aetatis sue, i.e. on the fifth of the nones of June, uitam finiuit. AU.	**49. Muirecán iii.**[3] mac Ciaracain ó Boith Domnaig L. mac Eathach Y.[4]	Son of Ciaracán of Bodoney. Son of Eochaid.

[1] A misplaced note: see no. 47.
[2] xxxviii Y.
[3] xix Y (from no. 50).
[4] Misplaced note: see no. 50.

Notes from the Annals.	COMARBADA PÁTRAIC.	Translation of Notes.
1001. A change of abbots, i.e. Maelmuire, son of Eochaidh in uicem Muirecan. AU. Murecan, abbot of Ard Macha, resigns his abbot's chair, Maelmuire taking the abbacy in his stead. AI.	**50. Mael Muire xix.**[1] mac Eochacain L.	Son of Eochacán.
1005. Muirecan, coarb of Patrick, lxx° secundo anno etatis sue . . [died] in A. AU.		
1011. Muireadach, son of Crichan, coarb of Colum Cille and Adamnàn, a learned man, bishop and virgin, lector of Ard Macha and intended coarb of Patrick, died. AFM. Muiredach, son of Crichan, coarb of Colum Cille and *ferleiginn* of Ard Macha in Christo [dormiuit.] AU.		
1020. Maelmuire, coarb of Patrick . . . in xx° anno principatus sui on the third of the nones of June, in Christo quieuit. Amhalgaidh in the *comarbus* of Patrick by the will of the laity and clergy. AU.	**51. Amalgaid xxix.**[2]	
1047. Natiuitas Domnaill, son of Amalgaidh, i.e. coarb of Patrick. AU.		
1049. Amalghaidh, coarb of Patrick, xxix annis transactis in principatu penitens in Christo quieuit. AU.		
1049. Dubhdalethe assumed the abbacy from his lectorship in eodem die quo mortuus est Amhalghaidh. AU.	**52. Dub dá Lethe xii.**[3]	

[1] *om.* Y (see note 3, p. 328), xiii B. Here the list in O ends. [2] *om.* Y. [3] ii B, *om.* Y.

Notes from the Annals.	Comarbada Pátraic.	Translation of Notes.
1060. Great war in A. between Cumuscach Ua Erodhain and Dubhdalethe, coarb of Patrick, respecting the abbacy. AU. A change of abbots, i.e. Cumusgach Ua Eradain in the place of Dubhdalethe. CS.	**53. Cummascach iii.**	
1064. Dubdalethe, son of Mael Muire, coarb of Patrick on the Kalends of September in bona penitentia mortuus est.		
Mael Isu, son of Amalgaidh, took the abbacy. AU.	**54. Mael Isu xxuii.**	
1074. Cumuscach Ua h Eroduin, head of the poor of Ireland, post penitentiam optimam in pace quieuit. AU.		
1091. Mael Isu, coarb of Patrick, on the fifteenth of the Kalends of January in penitentia quieuit.		
Domnall, son of Ambalgaidh, was immediately instituted into the abbacy in his stead. AU.	**55. Domnall xiiii**	
1105. Domnall, coarb of Patrick, went to Ath cliath, ... so that he took illness there, and he was carried in his illness to Domnach of Airthir Emhna, ... and he was carried to Damliac, and he died there. And his body was carried to A., i.e. on the 2nd of the Ides of August. AU.		
Ceallach, son of Aedh, son of Mael Isu, was instituted in his place in the *comarbus* of Patrick. AU.	**56. Cellach xxiiii (?)**[2]	

[1] uiii B. Here the list in B ends. [2] xxuii Y, *om.* L.

Notes from the Annals.	COMARBADA PÁTRAIC.	Translation of Notes.
1106. Ceallach received the orders of *uasal* bishop. AU.		
1129. Cellach sent forth his spirit in Ard Patraic of Munster on the Kalends in April. AU.		
Muircertach, son of Domnall, was instituted into the *comarbus* of Patrick on the Nones of April. AU.	**57. Muirchertach**[1] **iii.**	
1132. Maelmaedhog Ua Morghair sat in the coarbship of Patrick at the request of the clergy of Ireland. AFM.		
1134. Muircertach died, September 17. Niall succeeded him. A change of abbots, i.e. Maelmaedhog Ua Morgair in the place of Niall. AFM.		
Muircertach, coarb of Patrick, quieuit. Maelmaedhog Ua Mongair in the chair of Patrick. CS.	**58. Mael Maedoc.** Hua Morgair[2] LY.	Descendant of Morgar (Mongar).
1136. A change of abbots, i.e. Niall in place of Maelmaedhog. Maelmaedhog Ua Morgair resigned the *comarbus* of Patrick for the love of God. AFM.		
1137. A change of abbots, i.e. the airchinnech of Doire in place of Niall. AFM.	**59. Gilla Meic Liac.** edón mac ind fir dana meic Diarmada meic Ruaidhri Y.[3]	i.e. son of the poet. Son of Diarmait, son of Ruaidhri.
1139. Niall, son of Aedh, son of Maelisa, coarb of Patrick for a time, died after intense penance. AFM.		

[1] Y only. [2] Hua Mongair Y. [3] Here the list in Y ends.

Notes from the Annals.	Comarbada Pátraic.	Translation of Notes.
1174. Gilla Mac Liac, son of Ruaidhri, coarb of Patrick, archbishop and primate of A., died on the 6th of the Kalends of April. AU. Grandson of Ruadhri, i.e. son of the poet (*mac ind [fh] ir dana*) of the Ui Birn. Gospels of Maelbrigte (*Facs. of Nat. mss. of Ireland*, I, pl. xlii).		
1175. Conchobur, son of Mac Conchaille, abbot of the *rectes* of Paul and Peter and coarb of Patrick afterwards, died in Rome. AU.	**60. In t-epscop hua Muredaig.**	
1180. Gilla-in-Coimdedh Ua Carain, coarb of Patrick, died. AU.	**61. Gilla Chomded hua Carain.**	
1181. Tomaltach Ua Conchobair assumed the *comarbus* of Patrick. AU.	**62. Tommaltach.** mac Aeda meic Tairdelbaig hui Conchobair L.	Son of Aedh, son of Toirdelbach Hua Conchobair.
1184. Mael Isu Ua Cerbaill assumed the *comarbus* of Patrick after it was laid aside by Tomaltach Ua Concobair. AU.		
1185. Amhlaim Ua Muirethaigh, bishop of A. and Cenel Feradhaigh, in Christo quieuit. And he was carried to Daire of Colum Cille, and buried at the feet of his father, i.e. the bishop Ua Cobbthaigh, octogesimo sexto etatis sue anno. Fogartach Ua Cerballain was instituted in his stead. AU.		
1201. Tomaltach Ua Concobhair, coarb of Patrick, in pace quieuit. AU.		

Before making a somewhat minute examination of the List it is desirable to call attention to an important note in L, appended to no. 36. It begins thus:—"Three erenachs here who took the abbacy by force, *who are not mentioned at Mass.*" This note is of liturgical interest, inasmuch as it corroborates the evidence—sufficient, no doubt, but rather scanty—for the reading of the Diptychs of the Dead at Mass in Ireland.[1] Moreover, we learn from it that at Armagh, and, as we may infer, elsewhere also, the diptychs included a list of the heads of the religious community.[2] The purpose of the note is obviously to explain the exclusion from the diptychs of certain names which might have been expected to occur in such a list. It asserts, in effect, that the excluded persons were abbots *de facto*, but not *de jure*. Finally, the note gives ground for believing that our List was actually based on the diptychs. That is the only hypothesis on which the note is relevant in its present position.

The writer (or the scribe of the Book of Leinster) omits one of the three names which he declares to have been absent from the Mass List; but it will be observed that the two which remain are also absent from the List of coarbs.[3]

A further reason for holding that the List of coarbs was copied from the diptychs may be found in O. The last coarb mentioned in that manuscript is Mael Muire (no. 50). But his name is followed, without break, by those of three other persons, who were not abbots, Mael Duin mac Aedha Bennan, Artri mac Cathail, and Tnuthgal. The first of these was a king of Iar Luachair, who died in 786; the second became king of Munster in 793; the third may have been Tnuthgal, whose son Faelgus died in 783, but of whom nothing more seems to be known. In the diptychs, as will be shown immediately, we might expect to find the names of a few lay benefactors of Armagh following those of the abbots. The appearance of these three names in O can, therefore, be understood on the supposition that the list of coarbs which it contains is to be traced back to the diptychs of the church.[4]

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[1] See F. E. Warren, *Liturgy and Ritual of the Celtic Church*, 1881, p. 105. The diptychs, it seems, were usually read after the Offertory, and were followed by the *Collectio post nomina*, but in the Stowe Missal they are in a different position. L. Duchesne, *Origines du Culte Chrétien*, 1898, p. 199 ff.; G. F. Warner, *Stowe Missal*, ii, 14 f.; Warren, p. 262, note 88.

[2] There is no such list in the Stowe diptychs; but that is explained if the Missal was written at Tallaght, soon after the death of the founder, Mael Ruain (cp. Warner, ii, p. xxxiii).

[3] Fland Rói and Gormgal. Was the third *de facto* abbot Suibne (*Suibne mac Farnig*, at end of note, being omitted by homoeoteleuton)? See no. 35, and AU, at no. 36.

[4] Professor John MacNeill (*Zeitsch. f. Celt. Phil.* x, 92) thinks that these three names are a misplaced fragment of a list of kings of Cashel; but this seems very doubtful.

It is suggested then that, to some extent, our List, so far as the mere names are concerned, is a copy of a list in the diptychs of Armagh, which was supposed to enumerate the abbots. Is the existence of such a list supported by independent evidence? For an answer to that question we turn to Gaul, from which the practice of reciting the names of the dead was probably imported to Ireland. An obscure passage of Venantius Fortunatus[1] informs us that the names of deceased *apostolici proceres reliquique patroni* of the church of Tours, including St. Martin, were inscribed on ivory tablets, and recited at Mass. This, says Mr. Edmund Bishop, "is good evidence of the recital of individual names of the dead in Gaul (or at least of the bishops in the church of Tours) by the sixth century."[2] This will be granted; but it is evident that the *proceres* and *patroni* may be taken to include more than bishops. We have an even more instructive document. The diptychs of the Monastery of the Apostles at Arles, founded by St. Aurelian about 548, are preserved in the form in which they were used towards the end of the sixth century.[3] The first section runs thus:—"Simulque precantes oramus etiam, Domine, pro animabus famulorum tuorum patrum atque institutorum quondam nostrorum, Aureliani, Petri, Florentini, Redempti, Constantini, Himiteri, Hilarini, Januarini, Reparati, Childeberti, Wltrogotae, uel omnium fratrum nostrorum quos de hoc loco ad te uocare dignatus es." The *patres* and *institutores* of this passage are no doubt equivalent to the *proceres* and *patroni* of Venantius. Eleven persons are named under that head. The first is the founder. There follow eight ecclesiastics, of whom at least three were abbots of the monastery: Florentinus, Redemptus, and Constantinus. Of the last four we cannot speak with certainty. But two of them were prominent monks in 588: Januarinus, who in that year composed the epitaph of Florentinus, and Hilarinus, who is mentioned in the epitaph.[4] Of the others nothing is known. But the probability is that all four were abbots. On the other hand, Petrus was certainly not an abbot, for Florentinus was the imme-

[1] *Carmen X*, vii, 31-38 (MGH. *Auctores Antiquiss.*, iv, 1, p. 240):

Hunc quoque Martinum colitis, quem, regna, patronum,
nos hunc in terris, nos memor ille polis:
Vos intra angelicas turmas canat ille sub astris,
cui uos ante homines fertis honore diem.
Nomina uestra legat patriarchis atque prophetis
cui hodie in templo diptychus edit ebur.
Reddat apostolicos proceres reliquosque patronos
quem uos hic colitis uel pia festa datis.

[2] R. H. Connolly, *Liturgical Homilies of Narsai*, p. 100.

[3] Mabillon, *De Liturgia Gallicana*, lib. i, c. 5, § 12 (p. 43); PL. lxviii, 395; Reeves, *Adamnan*, p. 211 f.; Warren, *op. cit.*, 106 f.

[4] Ceillier, *Histoire Générale des Auteurs Sacrés et Ecclésiastiques*, 1858-1863, xi, 321 f.

diate successor of Aurelian.[1] After the ecclesiastics mention is made of Childebert I, King of the Franks, and his queen, under whom the Monastery of the Apostles was founded. Thus we have in this list of *patres atque institutores* the founder, eight ecclesiastics, some, but not all, of whom were abbots of the monastery, and two lay benefactors.

If the diptychs of the church of Armagh followed some such Gallican model as this, we might expect that the names of the dead in them would fall under the same three categories: the founder, St. Patrick; abbots and some other worthies of the local church; lay patrons. That is apparently what we do find in O, as has already been pointed out.

Now if the diptychs of the dead at Armagh was originally a catalogue of *patres atque institutores*, we can readily understand how in later ages it came to be regarded as a list of the successors of St. Patrick. At first it would have included the names of a few worthies who did not hold the office of abbot. But abbots would always have a first claim to a place in it. As in the course of centuries the list grew longer, no others would be admitted. Ultimately it would become the habit to add to it each abbot immediately after his death, and so its original purpose would be forgotten. It would then be looked on as an authentic catalogue of the coarbs.

Confirmation of this suggestion may be found in a well-known hymn in the Antiphonary of Bangor, which has the title *In memoriam Abbatum Nostrorum*. It commemorates the first fifteen "abbots" of that monastery, and was written between 680 and 691, while the last of the fifteen was still in office.[2] In spite of that fact, its first stanza runs—

Sancta sanctorum opera
Patrum, fratres, fortissima,
Benchorensi in optima
Fundatorum ecclesia,
Abbatum eminentia,
Numerum, tempora, nomina,
Sine fine fulgentia
Audite magna merita,
    Quos conuocauit Dominus
    Caelorum regni sedibus.

The last two lines reappear at the end of each of the following stanzas except the last. The first stanza reminds us suggestively of the beginning (*patrum atque institutorum*) and end of the passage quoted above from the diptychs of

[1] *Gallia Christiana*, i (1716), 600.

[2] See F. E. Warren's *Antiphonary of Bangor*, vol. i, p. ix f.; vol. ii, p. 33.

Arles. Of the fifteen names in the poem the obits of at least fourteen are recorded in the Annals. But between the second, Beognous (Beogna, † 606), and the fourth, Sinlanus (Sillan, † 610), we have Aedeus, who is apparently not mentioned elsewhere as an abbot of Bangor. In the Annals of Ulster s.a. 607 (recte 608), however, midway between the obits of Beogna and Sillan, we read "Quies Aedach mic Daill." This Aedh is surely the Aedeus of the hymn. But in the Annals of Ulster he has no title, and in the Annals of Tigernach, which preserves the names of all the other persons mentioned in the hymn, he is not referred to at all. The hypothesis is not unreasonable that this memorial hymn was based on a list in the diptychs which was supposed in the last quarter of the seventh century to be a catalogue of abbots, though in fact it included one ecclesiastic who did not hold that office.

The result of an argument which will have its fitting place at a later stage of our inquiry may be anticipated here. It seems that the recitation of the names of the dead was abolished at Armagh in the first quarter of the twelfth century, at the latest; and that the original list of coarbs based on the diptychs was made about 1020. If that conclusion is correct, it follows that the final names in our list (nos. 51–63) were not derived from the diptychs.

We may assume, then, that at least the earlier part of our list was based on the diptychs of the church of Armagh. But the diptychs would have supplied the compiler with a mere list of names, arranged approximately in chronological order.[1] For the numbers indicating the periods of office, and of course for the notes, he must have had recourse to other authorities. That he actually did so will be confirmed by evidence which will present itself as we proceed.

We may now enter upon a more detailed scrutiny of the list. It may conveniently be divided into four sections, the first containing nos. 1–25, the second nos. 26–41, the third nos. 42–56, and the fourth nos. 57–63.

In the first section names, numbers and notes are, for the most part, in agreement with the Annals. It will be seen that as a rule the period assigned to a coarb is the interval between the date of his death and that of his predecessor in the list, as given in the Annals.

A few minor discrepancies, real or apparent, between our two authorities may be mentioned.

[1] In the diptychs at Constantinople in the fifth century the bishops were named in the order of succession (E. Bishop, in Conolly, l.c., p. 104). But the abbots of Armagh could not have been so arranged without repetition of names; for it often happened that an abbot had two terms of office, between which another held the abbacy.

No. 2. According to the Annals Sechnall came to Ireland in 439 or 440, and died in 448. Hence his term of office cannot have been more than eight or nine years. But the List assigns him thirteen years. We may, perhaps, assume that xiii is a scribe's error for viii. Compare the errors of L in no. 13 and B in no. 55.

No. 5. In the note B confuses Iarlaithe of Armagh with Iarlaithe of Tuam, 'mac Loga meic Dana' (Rawlinson, B 502, Facs., ed. Kuno Meyer, p. 91, f, l. 18). The text of the Lismore Lives shows traces of a similar confusion.

No. 6. Pátraic is probably an insertion of the scribe of Y. Omitting that name, the List harmonizes with the Annals. See further below.

No. 7. The Clann Chernaig is the Ui Nialláin—a tribe which gave many abbots to Armagh (Rawl., B 502, p. 146, f, l. 27). *Crich innd Ernaidhe* in AU is therefore probably an error.

No 11. The Ui Tuirtri were descended from Colla Uais (Rawl., B 502, p. 146, g). The statements of the note and of the Annals are therefore equivalent.

No. 12. The List makes the interval between the death of Duach (no. 11) and Feidilmid (no. 13) 30 years, so far agreeing with the Annals. But AU know nothing of Fiachra, and call the intervening abbot David. Colgan (*Trias*, 293) identifies David with Fiachra. But the date of David's death according to AU is 551, while the List places the death of Fiachra in 558; and the genealogies of David and Fiachra cannot be harmonized. AU stand alone in mentioning David, for AFM merely translate AU; and the entry is rendered suspect by the anachronistic statement that he was 'legate of all Ireland.' On the other hand, the Annals in Book of Leinster record the obit of 'Fiachra, abbot of Armagh,' apparently between 549 and 561 (Stokes, *Tripartite Life*, ii, p. 515). It seems therefore that the List is here to be preferred to AU.

No. 17. Mac Laisre's term of office is given as fourteen years: the Annals suggest thirteen. There is no necessary inconsistency, for, according to Gorman, Mac Laisre died late in the year.

No. 18. The Annals suggest that Tómine held office for 38 years: the number in the List is 35. But the reading of the latter is somewhat uncertain. The true period may be 37 years.

No. 20. Forannán is in L only, and is unknown to the Annals. Probably an addition to the original List.

No. 21. The genealogy of Flann Febla (Rawl., B 502, p. 89, e) shows that the note is consistent with AU.

No. 22. The note differs from AFM (see no. 25); but the pedigree in Rawl., B 502, p. 146, f, l. 43, supports the List.[1]

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[1] It may be mentioned that there is considerable confusion about Senach (no. 16). (1) On May 11 Gorman has Senach the smith, whom the gloss describes as son of Etchen from Aired Brosca on Lough Erne. The Martyrology of Donegal, as usual, copies Gorman, incorporating the gloss with the text. (2) Under Nov. 2 Gorman places Senach, glossed 'priest of Cell mór.' The Martyrology reproduces this, adding *inter alia* that

But this section of the List must now be scrutinized from a somewhat different point of view. The Annals of Ulster give a choice of three dates for the death of St. Patrick, 462, 492, and 493.[1] Professor Bury prefers the earliest of the three, 462, and he rightly claims that the note (L) under no. 1 supports his view. It states that 58 years elapsed between the coming of the saint into Ireland and his death.[2] Interpreting his coming into Ireland as referring to his captivity (c. 404), this gives the date of his death as c. 462.[3] The date is confirmed by the period of office assigned to him in Y, fifteen years. Reckoning from the foundation of Armagh in 445, this gives 460 as the year of his death. Possibly xu is a scribe's error for xuii, which would bring us to 462. Now let us turn to the Annals. The Annals of Ulster describe Sechnall (no. 2) as a bishop, but they do not call him bishop of Armagh. They give no title of office to Sen-Pátraic (no. 3). On the other hand, they describe Benén (no. 4) as "episcopus successor Patricii" and Iarlaithe (no. 5) as "tertius episcopus Ard Machai," no doubt reckoning St. Patrick as the first bishop. Thus it is clear that they do not regard Sechnall and Sen-Pátraic as coarbs of the founder. According to them,

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this Senach 'may be Senach Garbh.' (3) The Martyrology of Tallaght (Book of Leinster, Facs. 362, col. 4), under Sept. 10, has 'Senach Garbh,' while Gorman (followed by the Martyrology of Donegal) has Senach, glossed 'son of Buide.' Stokes identifies this person with a Senach Garbh, abbot of Clonfert, who died in 621 (AU); no doubt rightly, as may be inferred from the gloss in Rawlinson B 512 on Feb. 21 (Oengus, ed. Stokes,[2] p. 79):

> Finntan Corach, Senach Garbh, friendly Colmán son of Congall,
> A trio of them with valorous warfare, one after the other in the abbacy.

The abbacy seems to be that of Clonfert: see glosses in Oengus (p. 77) and Gorman on Feb. 21.

These three are clearly different persons; and (3) cannot be the Senach of the List, while neither of the others is described in the Calendars as abbot of Armagh. The note in the List seems to conflate the three into one, helped perhaps by a confusion between Cluain Ferta and Cluain hUi meic Gricci. The Donegal martyrologist apparently confuses (2) with (3). It should be observed that the Annals do not give the Senach of the List the epithet *Garbh*.

This is perhaps a suitable place to remind ourselves of certain characteristics of the Book of Leinster. The scribe used excellent material, and he wrote a good hand; but unfortunately he is often inaccurate in reproducing his documents. The seeming blunders in this note which we have discussed may not all be due to the scribe of the exemplar which he transcribed.

Stokes (*Gorman*, index) thinks one Senóir, son of Mael dá Lua, primate of Armagh, commemorated on April 11, was probably the Senach of the List, but gives no reason for his opinion.

[1] See nos. 1, 6.

[2] The same statement occurs in the Chronological Poem of Gilla Coemain, 34; but there the period runs from St. Patrick's coming as a missionary (Stokes, *Tripartite Life*, ii p. 537).

[3] J. B. Bury, *Life of St. Patrick*, p. 383 f.

Benén was the first *comarba Pátraic*. It can hardly be questioned that they are right. Sechnall and Sen Pátraic, if we accept the dates of their obits, predeceased St. Patrick. They may have been his coadjutors, but not in any true sense his successors. The first coarb of Patrick is the first on the List who outlived him, on the supposition that he died in 462.

The notes in L and Y are therefore consistent with the Annals. But it follows that the list of names is in conflict, not only with the Annals, but with the notes. If Sechnall and Sen-Pátraic were not coarbs of Patrick, they should not have appeared in the List. How is the discrepancy to be explained? Most easily on the hypothesis, already maintained, that the List was copied from the diptychs of the dead, which was a list, not presumably of the abbots, but of the worthies of the church. In such a catalogue, coadjutors of St. Patrick would naturally be named, and in later times they would be assumed to have been his successors.[1]

It must not be supposed that the List wholly abjures the later theory that St. Patrick died in 492 or 493. It is involved in the statement of Y (no. 1), that he was 120 years old at the time of his death. But, more remarkable still, it is implied in the note in L (no. 7), which calls Cormac (482–497) "first abbot." He is so described in other early documents.[2] And the meaning is clear. Cormac "sat in Patrick's chair" immediately after his death as his first successor. He was, in fact, the first on our List to survive St. Patrick, on the hypothesis that he died in 492 or 493.

This note is important, because it no doubt suggested to the scribe of Y the insertion of Pátraic (no. 6) immediately before Cormac. This Patrick can be no other than the Apostle of Ireland (no. 1), and the name cannot have appeared here in the original List. Why his term of office should have been thought to be four years, it is impossible to guess.

One other feature of this section may be noted before we pass on. All the persons named in the List, from Benén (no. 4) to Ailill II (no. 10), were bishops. Thus, for three-quarters of a century from St. Patrick's death the succession was an episcopal succession. But from 536 we observe a change. Ailill II was succeeded by an abbot, and henceforth abbots and bishops alternate, abbots being in the majority. Of this curious fact, several explanations may be offered. We may suppose, with Ware and many others, that all those who are styled abbots were of the episcopal order. But this is pure assumption; and it cannot be maintained in the later sections of the List.

[1] Compare the remark of Professor J. B. Bury, *English Historical Review*, vol. xvii (1902), p. 701 f.

[2] Annals in the Book of Leinster; Chronological Tract in Leabhar Breacc (Stokes, *Tripartite Life*, ii, 513, 553).

We may suppose, again, that there were really two successions—a succession of bishops, and a succession of abbots—which have been fused into one in our List. On this hypothesis we should have a succession of abbots, beginning at 578, as follows: Eochaid †598, Senach †610, Mac Laisre †623, Flann Febla †715, Cele Petair †758, Fer dá Chrích †768. For the same period the succession of bishops would be: Cairellán †588, Tómine †661, Ségíne †688, Suibne †730, Congus †750. Thus the average period of an abbot would be 32 years, and of a bishop 40 years. These figures reduce the hypothesis to an absurdity. Finally, we may assume that the bishops were abbots, but that the abbots were not bishops. In favour of this, we have the fact that Cormac (no. 7), who according to the annalists was a bishop, is called in L and elsewhere an abbot. Many other instances of like kind might be cited.[1] Abbots who were not bishops would, according to an Irish custom which certainly goes back to the sixth century,[2] employ bishops to perform episcopal functions on their behalf. It is not surprising that such subordinate officials are seldom mentioned in the Annals. That there were such bishops at Armagh in the eighth century is revealed by the incidental notice of the death of one of them, Affiath, in 794 (no. 28). The record of his obit is obviously due to the fact that he died on the same night as his abbot. Thus it seems that the third explanation is much more probable than either of the others. If we accept it, we may absolve the compiler of our List from the charge of combining two catalogues of quite different officials into one.

It will be evident, at any rate, that Professor Bury's opinion that St. Patrick set up in Ireland a system of diocesan episcopacy, which in the course of time broke down,[3] is supported by our List. We may venture to suggest that the time at which the organization of the church at Armagh became purely monastic was about the middle of the sixth century.

During the period covered by the first section of the List, it appears that the succession was unbroken and undisputed. Each coarb held office till his death. None resigned or was deposed. There is no suggestion, either in the Annals or in the List, that there were at any time rival claimants for the chair of Patrick.

We now turn to the third section of the List, postponing for the moment our consideration of the second. It begins with the coarbship of Cathassach I

[1] See, e.g., nos. 8, 10. AFM often turn the abbots of AU into bishops. But in other documents I have noticed only one instance of this. Flann Febla is a 'súi epscop' in the *Cáin Adamnáin* (ed. K. Meyer in *Anecdota Oxoniensia*, 1905, p. 16). But Flann Febla is also a bishop in MS. A of AU.

[2] Adamnan, *V. S. Columbae*, i, 36.

[3] *Life of St. Patrick*, pp. 180 ff, 375 ff.

in 879 (no. 42). Here we find an agreement with the Annals of Ulster as exact as in the first section. With one exception (no. 53)[1] the names are the same in both, and, with the same exception, the chronological data are in accord. But there are some notable differences between the two sections. All the persons named in the present section, except Cathassach (no. 42), Joseph (no. 44), and Mael Pátraic (no. 45), are called in the Annals coarbs of Patrick—a title not hitherto used. It is implied that all were abbots: the equivalent *princeps* being used in this section in two instances (nos. 42, 45). Only three bishops are mentioned: Joseph (no. 44), Cathassach (no. 46), and Cellach (no. 56); and we have the direct statement of St. Bernard that at least eight of the twelve who are not so styled were laymen.[2] We saw that during the first period there were apparently no contests between rival claimants for the abbacy, and that all the abbots died in office. We now find signs of a less peaceful state of affairs. Muiredach (no. 47) was superseded by Dub dá Lethe II a year before his death; Dub dá Lethe was opposed by a rival coarb, Muirecán (no. 49), at least five years before he died; and Muirecán himself was replaced by Mael Muire (no. 50) after a short term of office. But in all these cases the terminal numbers agree with the chronology of the Annals—the rule of the abbot being always reckoned as beginning from the death or supersession of his predecessor.

In no. 53 (Cummascach) we find the only real discrepancy between the List and the Annals of Ulster. The twenty-seven years of Mael Isu are evidently computed from 1064, the year of the death of Dub dá Lethe III (no. 52). Cummascach is set down as the successor of Dub dá Lethe, and is said to have ruled for three years. It is, therefore, implied that Dub dá Lethe was deposed, or resigned, in 1060 or 1061. But the Annals of Ulster do not acknowledge Cummascach as coarb, and represent Dub dá Lethe as retaining office till his death. And they are supported by the Irish informants of St. Bernard, as has been shown in a paper published some time ago in the Proceedings of the Academy.[3] On the other hand, the *Chronicon Scotorum*, in harmony with the List, reports "a change of abbots," Cummascach succeeding Dub dá Lethe, in 1060. It is clear that there were two parties at Armagh, one of which acknowledged Cummascach, while the other did not. If he succeeded in getting possession of the abbacy, he must have been driven out, for he lived till 1074, ten years after the accession of Mael Ísu. We shall return to him later.

In the paper just referred to it was pointed out that the period now

[1] Another apparent inconsistency arising out of the terminal numbers of nos. 41, 42 will be considered when we come to deal with the second section.

[2] *Vita S. Malachiae*, 19. [3] *Proceedings*, xxxv, C, p. 233 f.

under review was that in which, according to St. Bernard, the abbots, or as he calls them, metropolitans, held their office by hereditary succession.[1] He explains this statement to mean that they were all of one family. Some additional remarks on the subject may be made here.

In the first place, there can be no doubt that the family to which St. Bernard refers was a branch—probably the principal branch—of the Clann Sinaich. The genealogy of that sept is preserved.[2] In at least one copy it is entitled *Genelach Uí Sinaich i. comarba Pátraic*, "Genealogy of the Uí Sinaich, *i.e.*, the coarbs of Patrick."[3] It begins with Amalgaid (no. 51), whose lineage is traced back, through Sinach, to Colla Fochrith.[4] In the paper which has been mentioned it was shown that four abbots of Armagh (nos. 54-57) were descended from Amalgaid, and that Dub dá Lethe III (no. 52) was the son of Mael Muire (no. 50). With the help of the genealogy the argument can be carried further.[5] From it we learn that Mael Muire was [illegible] Amalgaid and that Cellach, the father of Dub dá Lethe II (no. 48), was Mael Muire's grandfather. Thus it is practically certain that the succession prevailed from 966 at the latest.

We may, perhaps, carry it further back. Muiredach (no. 47), as the List tells us, in agreement with the Annals, came from Glenarind in Slieve Gullion; and Slieve Gullion was in Airthir, the home of the Clann Sinaich.[6] Again, a note (no. 48) states that the grandfather of Dub dá Lethe II, on his mother's side, was Mael Tuile of Iniskeen. Mael Tuile was the father of Mael Pátraic (no. 45),[7] and Iniskeen is on the River Fane, one of the boundaries of Airthir.[8] Mael Pátraic may therefore have belonged to the Clann Sinaich. If so, we may date the beginning of the unbroken hereditary succession as early as 926.

But as a fixed custom it cannot have been in existence before that year. The immediate predecessor of Mael Pátraic was Joseph (no. 44), whom the List and the Annals of Ulster describe as of the Clann Gairb Gaelta of Dalriada, a district in the north of the present county of Antrim. His predecessor was Mael Brigte (no. 43). What the List says of him is not now

[1] L.c., p. 235.

[2] In Rawlinson, B 502, p. 146, e, and elsewhere.

[3] Book of Ballymote, 113 b.

[4] Later recensions begin with Cellach (no. 56).

[5] The pedigree runs, 'Amalgaid m. Mael Maire m. Eochada m. Cellaich m. Flannacáin m. Cormain m. Airechtaich m. Dub dá Lethi m. Sinaich,' &c.

[6] See AU, 1059.

[7] It is of course possible that Mael Tuile the father of Mael Pátraic was not identical with Mael Tuile the grandfather of Dub dá Lethe.

[8] Hogan, *Onomasticon*, s.v. Airthir.

fully legible, but it seems to agree with the statement of the Martyrology of Donegal that he was of the race of Conall Gulban. His descent from that person is, in fact, well known.[1] Neither of these coarbs had any connexion with the Armagh septs. Thus there was a break in the hereditary succession at least from 888 to 936.

With these facts in mind we may call in St. Bernard as a witness. His evidence consists of two contradictory statements. We may consider first the passage in which he affirms that the same family "had already for nearly two hundred years possessed the sanctuary of God, as by hereditary right."[2] It is important to note that he is not here speaking in his own person. The words are put into the mouth of St. Malachy at the time when he was just about to make an effort to dislodge Muirchertach (no. 57) from the abbey, that is, in 1132. Now from 936, the earliest possible date for the establishment of the claim to hereditary succession, to 1132 is 196 years. From 966, which seems to be the latest possible date, to 1132 is 166 years. Either of these periods, but more fitly the former, could be described as "nearly two hundred years." St. Bernard's statement is therefore in accord with the result of our researches.

Elsewhere, however, he tells us that "fifteen *quasi* generations had already passed in this wickedness."[3] The date from which he reckons the fifteen generations is the year of Cellach's death, within a few days of which Muirchertach was elected as his successor. He seems to use the phrase "*quasi* generation" of the period of office of a coarb.[4] Now Mael Pátraic (no. 45), before whose accession we have learnt that hereditary succession to the coarbship was not an unvarying rule, was the first of a series of abbots of which Muirchertach was not the fifteenth but the twelfth.[5] The two statements are therefore irreconcilable. How can we account for the contradiction? A very simple explanation is at hand. The document on which St. Bernard worked probably had the words "generationibus xii." If the saint mistook xii for xu, he fell into one of the commonest of scribes' errors, of which there are several examples in the MSS. of the List.[6]

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[1] See the genealogical table in Reeves, *Adamnan*, opposite p. 342. If the concluding words of the note are correctly read *.i. na hoentad*, "i.e., of the union," they may be interpreted as referring to a union between the Columban and Patrician foundations, in virtue of which they had a common abbot.

[2] *Vita S. Malachiae*, § 20: "Qui iam annos ferme ducentos quasi hereditate possedissent sanctuarium Dei."

[3] *Ib.*, § 19: "Decursis iam in hac malitia quasi generationibus quindecim."

[4] *Proceedings*, XXXV, C, 235.

[5] St. Bernard omits Cummascach.

[6] A different explanation was offered in *Proceedings*, l.c., p. 236. It must now be abandoned in the light of fuller knowledge.

We now return to Cummascach. Fortunately we have his pedigree,[1] and it proves conclusively that he was not a member of the Clann Sinaich. He was a great-grandson of Erodhan, a descendant of Conchobar Corrach; and Conchobar Corrach belonged to the Ui Bresail,[2] a kindred but distinct sept. His contention with Dub dá Lethe was the only attempt for a century to dispute the claim of the Clann Sinaich to provide abbots for Armagh. It was clearly unsuccessful. St. Bernard may allude to the incident when he writes: "They did not suffer any to be bishops [he should have said abbots] who were not of their own tribe and family."[3]

Having thus cleared the ground, we may call attention to a coincidence which lends some support to our argument. It has been pointed out that the title "Coarb of St. Patrick" is characteristic of the section of the List with which we are now concerned. The first person to whom it is given is Cathassach II (no. 46). Thus its use begins at the very moment when, as we contend, the succession became fixed in the Clann Sinaich. And it is applied to every succeeding abbot, with the single exception of Cummascach, who is the only person in this section after 936 whom we have reason to believe not to have been descended from Sinaich. Is it possible that the word *comarba* at this period connoted something more than mere succession in spiritual office? We may venture to suggest that it included the conception which St. Bernard expressed by the phrase *hereditaria successio*—succession confined to one "tribe and family." No doubt it lost that significance when it was used of Mael Maedhoc and later archbishops. But Amhlaimh Ua Muiredhaich, 660, is not called coarb of Patrick, and the title practically disappears in the early years of the twelfth century.

Now, if for two centuries the coarbs of Patrick were invariably selected, as of right, from the Clann Sinaich, we may be confident that the right was not generally acknowledged at the moment when it was first claimed. Those centuries during which all the recognized coarbs belonged to the privileged family must have been preceded by a period of struggle, in which the prerogative of the sept was asserted, and, after contest, finally admitted. The first member of the Clann Sinaich to sit in the chair of Patrick was Dub dá Lethe I, the son of Sinach, the ancestor of the sept (no. 27).[4] We shall see later that he became abbot in 775. From 775 to 936, when the hereditary succession became a regular custom, may be supposed to have been the

[1] Rawlinson, B 502, p. 146, f.

[2] *Ib.* The Ui Tuirtri, Ui Echach, Ui Bresail, Ui Nialláin, Ui Sinaich, and Ui Méith were all septs of the Airghialla.

[3] *Vita S. Malachiae*, § 19.

[4] See the genealogy, p. 342, note 5.

period of contest; and it almost exactly coincides with the second section of the List (nos. 26–41). With the expectation that we shall find in it traces of the struggle, we proceed to examine that section.

The second section is in strong contrast to the first and third by reason of its confusion. The confusion is manifested in two directions: first, in the difficulty of fixing the text of the List, due to the contradictory evidence of our four authorities; and, secondly, in the irregularity of the succession which it reveals.

Let us consider the text first.

At the very beginning we are confronted with a conflict of evidence. In YBO Cú Dínisc (no. 26) follows Airechtach (no. 28), and Foendelach (no. 29) precedes Dub dá Lethe (no. 27). Here the Annals come to our assistance. Cú Dínisc died in 791, and Foendelach in 795. Thus the order of YBO is unchronological, and we are justified in following L. Moreover, we can give a plausible reason for the transposition of the names in the ancestor of the other MSS. For a note in L (no. 29) informs us that Foendelach was killed by Dub dá Lethe. Must he not, then, have preceded him in the abbacy? So the revisers of the List would argue. The Annals at once get rid of the chronological difficulty, and save the reputation of Dub dá Lethe, by writing euphemistically that Foendelach "perished by a sudden death." Perhaps a better solution is to interpret Dub dá Lethe in the note as meaning the supporters of Dub dá Lethe and his family.

A little lower down (nos. 31–33) L omits three names which are found in YBO: Torbach, Nuada, and Mac Loingsi. Here the Annals support YBO. Moreover, that Torbach actually held the abbacy is certain. He was the *heres Patricii* at whose dictation Ferdomnach wrote the Gospel according to St. Matthew in the Book of Armagh.[1] And if these three abbots are omitted, the chronology is deranged; for the periods assigned to the next two abbots, of eight and two years, respectively, do not fill the gap between Connmach (no. 30), who died in 807, and Eogan (no. 36), who died in 834. But we must restore another name, which is absent from all our MSS. Toichtech (no. 32) is the abbot mentioned next after Torbach in the Annals. But this fact, taken alone, would not warrant his inclusion in the List. The List itself, however, as we have it, implies that a name has fallen out in this place. For Nuada (no. 33) is said to have been in office three years. Now, he died in 812. He must, therefore, have been elected in 809, the very year of Toichtech's death, a year after the death of Torbach (808). The omission is accounted for by the resemblance of the names Torbach and Toichtech (or the variant Toichlech), written in Irish character.

[1] Proc. R.I.A., iii (1846), 316 ff; J. Gwynn, *Book of Armagh*, pp. xv, cxvi.

The MSS. are at variance in another place. Mael Coba (no. 41) follows Cathassach (no. 42) in YBO, and precedes him in L. Whether the transposition was made in the archetype of L or in that of YBO is not clear, though the latter supposition seems more probable.[1] We shall find reason hereafter to think that there was an error in a MS. from which all four were derived—perhaps the original List.

We come now to the phenomena of the succession of the abbots in this second section.

Let us notice first that it is preceded by a gap in the chronology without parallel elsewhere. Dub dá Lethe I (no. 27) held the abbacy for eighteen years, and died, as the Annals tell us, in 793. Thus he was elected in 775. Setting aside Cú Dínisc (no. 26), for reasons which will be given immediately, we are left with a period of seven years from the death of Fer dá Chrích (no. 25) to the accession of Dub dá Lethe, during which, so far as we know, there was no coarb of Patrick.

It is probable that this vacancy gave Dub dá Lethe his opportunity to seize the abbacy, and to claim it as the possession of his father's family. But though he seems to have held it to the end of his life, and to have been eventually succeeded by his son Commach (no. 30), we have good evidence that neither his rule nor that of Commach was altogether peaceful.

Commach is said in the List to have been abbot for fourteen years, that is evidently from the death of his father in 793 to his own death in 807. Plainly, the source from which Commach's terminal number was taken ignored Airechtach and Foendelach (nos. 28, 29). The compiler of the List, therefore, had access to a catalogue of coarbs from which these two were excluded, though (no. 36) they were mentioned in the diptychs of the church. But it is equally plain that he knew another list which recognized them. For he assigns definite periods of office to both of them. Now, the list gives Foendelach a term of three years. Since he died in 795, he must have been acknowledged by his own followers as abbot from 792. This is so far in agreement with the Annals that they state that he was driven out in 793, and reinstated shortly afterwards. Airechtach (no. 28), who was abbot for one year, died in 794. Though the Annals call him abbot under that year, it does not follow that he died in office; for it is their habit, in recording obits, to give the title of abbot, or coarb of Patrick, to men who had held the office, but had resigned or been deposed. If we suppose that Airechtach immediately preceded Foendelach, his year as coarb would be 791–2; and 791 is the year

[1] YBO have been found guilty of altering the order already. In this instance it is not easy to conceive a motive for the transposition. The chronology is not really improved by it, though Mael Coba died five years after Cathassach.

of Cú Dínisc's death. Thus it would seem that there were three rivals who in succession to one another contested the claim of Dub dá Lethe and his son Connmach—Cú Dínisc, Airechtach, and Foendelach. It is, perhaps, sufficiently obvious that none of these persons was of the Clann Sinaich. But it may be well to point out that we have definite evidence of this fact in one instance. Dub dá Lethe had a son named Airechtach,[1] and it might be suspected that he was the second of the claimants just mentioned. Fortunately, a note informs us that the Airechtach of the List was of the Ui Bresail.

Let us note in passing that here the periods of office of the three rival abbots are included in those of Dub dá Lethe and Connmach. In a later instance, which has already been considered, the procedure of the compiler of the List is different. The term of office of Cummascach (no. 53) is exclusive of that of Dub dá Lethe III (no. 52), whose right to the abbacy he challenged.

It might appear from the List that when Foendelach was murdered in 795, Connmach obtained undisputed possession, and ruled for twelve years till his death in 807. But from the Annals we learn that matters were not so easily settled. There was another candidate for the seat of St. Patrick. This was Gormgal, son of Dindatach, Dindagad, or Indnatach. The Ulster Annals seem to imply that he was of the Ui Cremthainn.[2] He "profaned" Foendelach in 793, and opposed Connmach after Foendelach's death, making his circuit of Connaught in 799. That he had possession of the abbacy for some time is admitted by the compiler of the List, though he does not include his name in the catalogue, because it did not appear in the diptychs (no. 36). The six persons who engaged in this struggle for the abbacy for the space of fifteen years are all recognized as abbots in the Annals of Ulster. That the battle was a fierce one is made clear by the fate of Foendelach. The note on Connmach in the List (no. 30) implies that he was the first person who succeeded his father as abbot. Apparently, the compiler overlooked the fact that Fer dá Chrích (no. 25) was the son of Suibne (no. 22). For the prediction of Bec mac Dé to which he refers, see *Zeitschrift für Celtische Philologie*, ix. 169, and O'Curry, *Manuscript Materials of Irish History*, 1878, pp. 399, 625.

For five years after the death of Connmach the church seems to have had peace under three abbots, of opposition to whose rule we have no evidence. They were not all descendants of Sinach. The Annals of Ulster report that

[1] See the genealogy, p. 342, note 5.

[2] A sept in the barony of Slane, Co. Meath, according to MacCarthy (*Annals of Ulster*, Index).

Connmach "subita morte periit." If this phrase is again a euphemism, it prepares us to expect that at least his immediate successor came from a rival sept. The notes preserved in L fail us here; but we have definite evidence from other sources. The Annals state that Torbach (no. 31) was the son of Gorman, coarb of Mochta of Louth, and "of the Cinel Torbaigh, i.e. the Ui Cellaigh Breagh." The latter name indicates a tribe dwelling in Meath or the south of the county of Louth.[1] Again, Nuada was of Loch Uamha, now known as Lough Nahoo, in Leitrim.[2] Neither of them can have been of the Clann Sinaich. On the other hand, Toichtech came from Tir Iomchlair; and if it was near Armagh, as MacCarthy supposes,[3] he may have been of that sept.

The struggle began again under the following abbot, Mac Loingsig (no. 34). He had been six years in office when, in 818, Artri, son of Conchobar (no. 35), erenach (or, as one MS. of the Ulster Annals says, bishop) of Armagh went to Connaught with the shrine of St. Patrick. He was apparently accepted there as the coarb of Patrick during the remaining part of Mac Loingsig's rule. Mac Loingsig was succeeded by Eogan Manistrech (i.e. of Monasterboice, no. 36), who is credited with a rule of eight years, evidently reckoned from the death of Mac Loingsig (826) to his own death in 834. Immediately before him however, Artri appears in the List, and is stated to have held office for two years. Once again the compiler has gone for his terminal numbers to different sources, one of which acknowledged Artri as abbot, while the other did not. The period of office of Artri, as before in like case, is evidently included in that of Eogan. In a note under Artri's name we are told that he "suffered martyrdom from Eogan and from Niall and from Suibne, son of Fairnech." The Annals give us more particulars. Eogan, it would seem, was elected in 826. The next year he was "profaned" by Cummascach,[4] son of Cathal, and Artri, son of Concobhar; the latter having apparently returned from Connaught when he heard news of Mac Loingsig's death, to claim the abbacy at Armagh itself. The attempt to eject Eogan, it seems, was successful. If Artri then enjoyed his two years of rule, he was probably driven out at the end of them by Suibne (abbot of Damhinis), son of Forannán or Fairnech, who died in 830, having been abbot for two

The following notice, in the Annals of the Four Masters (s. a. 1056), is interesting: Mael Finnen mac Cuinne died, i.e. Maelfinnen, son of Conn, son of Joseph, son of Donnchadh, son of Dunadhach, son of Egertach, son of Luachan, son of Eoghan, son of Aedhagan, son of Torbach, son of Gorman of the Ui Ceallaigh Breagh.

[2] Hogan, *Onomasticon*, s. v. It will be noted that Connaught was the happy hunting-ground of several opponents of Clann Sinaich.

[3] *Annals of Ulster*, index.

[4] A king of the Airghialla, who fell in battle the same year.

months. Artri died in 833. Artri's father, Conchobar, was the son of Donnchad, King of Ireland, and was therefore not of the Clann Sinaich. Another attempt was made by Conchobar to unseat Eogan in 831. Possibly on this occasion Fland Rói (no. 36, note) was put in possession for a short time.

Fland Rói was the son of Cummascach, son of Conchobar Corrach, of the Ui Bresail, and was therefore of the same stock as Cummascach the opponent of Dub dá Lethe III, who was the sixth in descent from Aed Laigen, the third son of Conchobar Corrach.[1] The statement of the genealogist that Fland Rói "urged on the dogs out of the chariot, so that he was deposed from the coarbship of Patrick," happily illustrates the note under no. 36. Apparently a hunting coarb was regarded as unfit for his office!

In all these struggles Eogan was supported by Niall Caille, no doubt the Niall from whom Artri suffered martyrdom (no. 35), and whom the compiler of the List (or the scribe of L) confuses (no. 36) with Niall Glúndub.[2]

The next two abbots, Forannán and Dermait (nos. 37, 38), were in the strictest sense contemporary. The first to get possession was Dermait: but the Annals represent him to have been soon driven out by Forannán (835), though still in possession of the insignia of office (836). Four years later—in 839—they report a "change of abbots," Dermait being re-instated. But this seems to be a misplaced duplicate of a similar entry under 848; for there is no mention of a restoration of Forannán in the interval between them, and he was certainly abbot when he was taken prisoner by "Gentiles" in 845. It seems, therefore, that Forannán was in actual possession of the abbacy from 835 to 848, except the year that he was in the hands of the Norsemen, while Dermait was at least *de facto* abbot from 848 to 852. In the latter year both the claimants died. The compiler of the List, following one of his authorities, gives Forannán a period of eighteen years (834–852); following another, he gives Dermait four years (848–852). Thus, again, the term of office of one of two rival abbots is part of, and included in, the term of office of the other. Forannán can hardly have been of the Clann Sinaich; for, according to a gloss in the Ulster Annals, he came from Rath mic Malais, now known as Rackwallace, in the parish of Monaghan.[3]

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[1] See above, p. 344; and Laud 610, f. 105, a (ed. K. Meyer, ZCP, viii, 320); Book of Ballymote, 111, a, 10; Book of Lecan, 176, b; Rawlinson, B 502, p. 146, f; Book of Leinster, p. 333 c.

[2] Niall Glúndub was the grandson of Niall Caille. Rawlinson, B 502, p. 145, g.

[3] Hogan, *Onomasticon*, s. v.; Joyce, *Irish Names of Places*, iii, 535. On the other hand, Dermait's journey to Connaught raises some doubt as to his being of the Clann Sinaich. See above, p. 348, note 2.

The next abbot in the List, Fethgna (no. 39), was certainly not of that stock; he is described in the List as the son of Nechtan, of the Clann Echdach. The Annals of Inisfallen and the Fragmentary Annals mention one Cathasach, abbot of Armagh, who died in 856. Possibly he was an opponent of Fethgua, but the evidence for his existence is slender.

On the death of Fethgna (874) Mael Coba (no. 41) was elected abbot. Three years later he was ejected in favour of Ainmire (no. 40), who was "princeps" for nine months. Ainmire was then apparently dislodged, and died a year or two afterwards (879). In the List his term of office is included in that of Mael Coba. In the year of Ainmire's death Mael Coba was taken prisoner by foreigners. Thus the two claimants were removed, and Cathassach I (no. 42) seems to have immediately seized the abbacy. According to the List he ruled for four years, obviously from 879 to his death in 883. Mael Coba, however, must have returned from his captivity and been restored; for the incumbency of Mael Brigte (no. 43) is reckoned from his death.

Neither Ainmire nor Cathassach was of the Clann Sinaich. A partly obscure note in the List gives sufficient evidence that the former was of the Ui Niallain. The latter, according to the List, was a son of Robartach, who was grandson of Moenach, of Clann Suibne. He is also called son of Robartach in the Annals of Ulster; but in the Annals of Inisfallen son of Fergus.[1] Apparently there was some uncertainty about the name of his father. It is scarcely rash, therefore, to identify him with Cathassach, son of Dindotach, son of Donnchad, son of Moenach, son of Diucaill, son of Suibne, who was descended, through Erce, from Colla Uais, brother of Colla Fochrich, the ancestor of Clann Sinaich and many other septs.[2] There is nothing against the supposition that Mael Coba belonged to the Clann Sinaich; for the community of Kilmore, from which he came, was probably Cill-mór Enir, three miles east of Armagh.[3]

It has been observed already that the MSS. differ here as to the order of the names, L placing Mael Coba before, YBO after, Cathassach. On either arrangement there is a hiatus in the chronology; for the nine years divided between these two abbots do not fill the gap between the death of Fethgna (874) and that of Mael Coba in 888. It may be conjectured that in the

[1] AI mention this Cathassach twice: (1) s. a. 869 (*recte* 883), Quies Cathassaich abbatis A.; (2) s. a. 883, Quies Cathassaich, son of Fergus, abbatis A. The former entry evidently follows the authority normally used by the annalist, which at this point is fourteen years behind in its chronology; the latter comes from another document which gave the true year of the obit.

[2] Rawlinson, B 502, pp. 141, a. ll. 5, 35, b, l. 31, 146, c.

[3] See Hogan, *Onomasticon* s. v.; *Annals of Ulster* (MacCarthy), Index.

original List, or in a copy of it which was the common ancestor of our four authorities, the terminal number was written *u*, in error for *xu*. Since Gorman puts Fethgna's death early in 874 (February 12),[1] Mael Coba's incumbency, not counting the period of Cathassach's usurpation (if such it was), might have been reckoned as fifteen years. In that case the compiler, following his usual custom, included the period of office of Cathassach within that of Mael Coba.

Mael Coba was followed by two abbots, Mael Brigte and Joseph, who, as we saw, were not of the Clann Sinaich; and immediately afterwards began the period in which none who were not of that sept were able to get possession of the abbacy. We expected to find in the period which has now been surveyed a fierce contest, and our expectation has been amply fulfilled. Dub dá Lethe I and his son and successor, Connmach, had to face many opponents. Strife was renewed eleven years after Connmach's death, and continued, with an intermission of perhaps twenty-two years during Fethgna's incumbency, for seventy years (818–888). It is at least possible that the *casus belli* was then the same as it had been in the early years of the century—the claims of Clann Sinaich. Some of the abbots, or aspirants to the office, in those seventy years must certainly have been members of that tribe. But the Clann Sinaich, as it happens, is never mentioned, though the antecedents of a majority of the persons concerned in the disputes are given. From Torbach to Joseph there were fourteen legitimate or intruded abbots. Of five of them in the List, and of four others in the Annals,[2] there is evidence that they were not of the Clann Sinaich. Of one abbot, not mentioned in the List (Toichtech), we have not sufficient information to guide us to a conclusion. Of the rest—Mac Loingsig, Eogan, Dermait, and Mael Coba—we are told nothing. We may reasonably infer that they were descendants of Sinach. In a List drawn up when the succession was firmly established in one family it would be natural that the septs of persons who did not belong to it would be recorded, while silence was kept about those who did. We take it then that the contests of the ninth century were in all instances waged between the Clann Sinaich and its opponents, and that in them the clan was represented by the four persons just mentioned.

The result to which our meticulous examination of the second section of the List seems to lead may be expressed thus. The compiler took his list of names from the diptychs of the church of Armagh. But for the years of office of the several coarbs of Patrick he had recourse to two other lists

[1] But the Annals of Ulster date his death October 6.

[2] Two of these are omitted in L, and consequently the notes in the List are not available.

which we may designate by the letters *α* and *β*. List *α* was shorter than List *β*, and in the main included only coarbs of the family of Sinach; List *β* included many other names, a few of which, perhaps, were not in the diptychs. It is possible, however, that these few additional names may have been found by the compiler in a third list which he knew, but did not use. Among them were at least three erenachs who had violently seized the abbacy: Gormgal, Flann Rói, and one unnamed, probably Suibne (no. 36). We may set out these two lists, so far as we can reconstruct them, adding dates. An obelus (†) in List *α* indicates a coarb who was not of the Clann Sinaich.

	List *α*.[1]	List *β*.
775	Dub dá Lethe I.	Dub dá Lethe I.
787		Cú Dínisc.
791		Airechtach.
792		Foendelach.
793	Connmach.	Gormgal. Foendelach.
795		Connmach.
c. 798		Gormgal.
		Connmach.
807	Torbach. †	Torbach.
808	Toichtech.	Toichtech.
809	Nuada. †	Nuada.
812	Mac Loingsig.	Mac Loingsig.
818		[Artri.]
826	Eogan Manistrech.	Eogan Manistrech.
827		Artri.
830		[Suibne.] Eogan Manistrech.
831		[Flann Rói. ?]
834	Dermait.	Forannán.
835	Forannán. †	
848	Dermait.	
852	Fethgna. †	Fethgna.
874	Mael Coba.	Mael Coba.
877		Ainmire.

[1] The list of abbots of Armagh in the Annals in the Book of Leinster agrees almost exactly with List *α*. The only differences are the omission of Mac Loingsig and the addition of Ainmire. See Stokes, *Tripartite Life of Patrick*, ii, 520-523.

	List α.	List β.
878		Mael Coba.
879		Cathassach.
883		Mael Coba.
888	Mael Brigte. †	Mael Brigte.
927	Joseph. †	Joseph.
936	Mael Pátraic.	Mael Pátraic.

It appears that for a century and a half a determined effort was made to establish the right of the Clann Sinaich to provide abbots for Armagh, and that for nearly the whole of that time the claim was vigorously resisted. It is obvious that the hereditary succession was not maintained in the family of which Sinach was the ancestor while this struggle lasted. List α is much more favourable to that contention than List β. But even in List α there are six abbots who were not of Clann Sinaich. About three-quarters of the abbots in List β were of other septs. And it must be remembered that List β is, on the whole, confirmed by so reputable an authority as the Ulster annalist, and that it coincided in large measure with the authoritative list in the diptychs. It has therefore a considerable claim to be regarded as historical; while List α may have been framed in the time of the later abbots of the Clann Sinaich line, who would be anxious to push their prerogatives as far into the past as possible. St. Bernard asserts that the hereditary succession came into existence "by the devilish ambition of certain powerful persons."[1] We believe that the foregoing investigation justifies the strength of his language.

We are now in a position to discuss certain matters which were of necessity postponed to this point in our inquiry. The first of them concerns the notes in L. By what right do we assume that they belong to the original List? The answer to that question is to be found mainly in the note under no. 36, to which frequent reference has been already made. It is clear that it was written at a time when the recitation of the diptychs of the dead was still customary at Armagh. That implies, as we shall see in a moment, that it is not later than the first quarter of the twelfth century. But we may go further. The original writer of the note was aware that the List had its origin in the diptychs. That is to say, he was acquainted with the methods of the compiler. It is not a necessary corollary, but it is a probable one, that the annotator and the compiler were the same person. But further, though the notes in the other MSS. are scanty, they are, in a good many instances,

[1] *Vita S. Malachiae*, § 19.

similar to those of L. See nos. 4. 43. 47, 48. 50 (49); and compare nos. 5 (a false correction in B of the note in L),[1] 21. They seem, therefore, to go back to a common ancestor of LYBO. And, finally, some peculiarities of the text of YBO are most easily explained on the supposition that the editor of their common archetype had read the notes in L: see, for example, nos. 6 and 26–29.[2]

The second question now to be dealt with is two-fold. What is the date of the original List? and, When did the recitation of the diptychs cease at Armagh? The note on no. 36, as we have remarked, was penned while the diptychs were still in use. But it follows the name of Eogan, who died in 834, and it refers to incidents which in that year were still recent.[3] Thus, the recitation of the names of the dead cannot have been discarded before 835. But if we assume that the diptychs were the basis of the List up to 835, we may carry the date further forward. For we have noted that the method of using them was such as to produce the result that the periods of office of some abbots named in the diptychs were included in those of others who appear with them in the List. That method is continued certainly up to 879 (nos. 37, 38, 40, 41), and probably to 888 (no. 42).[4] After that year, therefore, we may place both the drawing up of the original List and the abolition of the recitation of the diptychs. In a later part of the List, where the incumbencies of Dub da Letha III and Cummasach are recorded (nos. 52, 53), this method is dropped, the periods of office assigned to them being exclusive of each other. Thus we may affirm that the original List was compiled before the death of Dub da Letha in 1064, though we cannot affirm that the reading of the diptychs at Mass had fallen into desuetude by that year. But it is certain that it had not lasted much more than half a century longer. For it had no place in Roman usage. It must therefore have been cast aside, if it was still in existence, when the ecclesiastical customs of Armagh were Romanized under Cellach, in 1120 or earlier.[5] It seems, then, that the original List is to be dated between 888 and 1064, and the abolition of the recitation of the names of the dead between 888 and 1120. But the dates may be defined more closely. For the framing of the original List cannot be much later than the death of the last coarb named in the earliest form of the List now known. Now O ends with Mael Muire. This shows that the List was drawn up at the latest, before the death of his successor Amalgaid, in 1049. But O offers us not only a *terminus ad quem*, but a *terminus a quo*. This manuscript has immediately after Mael Muire three names which, as we have already

[1] Or possibly a correction in L of the note in B.
[2] Commented on pp. 339, 345. [3] See p. 347. [4] See p. 350 f.
[5] St. Bernard, *Vita S. Malachiae*, § 7.

suggested, probably stood in the same position in the diptychs.[1] If this is correct, we have in O the end of the List exactly as it appeared in the autograph, so far as the names are concerned. Thus the original List of coarbs ended with Mael Muire. When in the other copies additional names of coarbs were added, the names of the three who were not coarbs would be omitted, as they are in LYB. But if the original List ended with Mael Muire, there can be little doubt that it was compiled during the incumbency of Amalgaid, between 1020 and 1049. Between 1020 and 1120 the practice of reciting the diptychs probably ceased.

There is no need to say much about the fourth section of the List (nos. 57–62). It does not rest on the authority of the diptychs—a remark, as we now know, which might be made with equal truth of the latter part of the third section (nos. 51–56). Our only authorities for it are the MSS. L and Y, the latter of which gives us no more than three names. But those facts rather enhance than diminish its worth. In L the last name is certainly a later addition; and it is not improbable that from Cellach onwards the name of each archbishop was written during his period of office.[2] If so, this portion of L is an autograph contemporary record; and, for that reason, much more valuable, as far as it extends, than the Annals of the Four Masters, the only chronicle which covers the whole period—of greater value indeed than the more trustworthy Annals which are available at its beginning and end. Y, too, has special value. In one sense, indeed, it is not contemporary, for it is the work of a fourteenth-century scribe. But the exemplar from which the List in it was ultimately, or perhaps immediately, derived was probably written in the time of the last coarb whom it mentions, Gilla Meic Liac, i.e. not long after 1137. The scribe of the exemplar was therefore a contemporary of Muirchertach († 1134) and Mael Maedhóc († 1148), and may have had first-hand knowledge of the important and stirring events of the years 1129–1137.

The period of three years which Y assigns to Muirchertach (no. 57) is reckoned from the death of Cellach (1129) to the year 1132, in which, as the Four Masters tell us, Mael Maedhóc "sat in the chair of Patrick." The two following years, during which, according to St. Bernard,[3] Muirchertach remained in Armagh, while Mael Maedhóc administered his office outside the city, are regarded as part of Mael Maedhóc's incumbency. L, on the other hand, disagreeing with St. Bernard, the Annals, and Y, omits Muirchertach. The scribe was plainly a partisan of Mael Maedhóc.

[1] See. p. 333. [2] See below, p. 358.

[3] *Vita S. Malachiae*, § 21. Y differs from St. Bernard (§ 20) in making Muirchertach's term of office three instead of five years.

Niall, whom the Masters state to have succeeded Mael Maedhóc in 1134, is ignored both in L and Y; and Gilla Meic Liac is represented as the immediate successor of Mael Maedhóc, in harmony with St. Bernard's statement,[1] though the Masters inform us that Mael Maedhóc resigned the see in 1136, leaving Niall in possession, and that Gilla Meic Liac succeeded Niall in 1137. In short, the List gives its support throughout to St. Bernard's narrative against that of the Four Masters.[2]

It will be noticed that Y gives Mael Maedhóc the surname Húa Mongair. This form is found also in the Annals of Tigernach and elsewhere. But the testimony of L seems decisive for the accepted spelling of the name, Hua Morgair.

There was apparently a contest for the archbishopric after the death of Gilla Meic Liac (no. 59). The Anglo-Normans regarded Gilla-in-Choimded (no. 61), whom they call Gillebertus or Gilbertus, as his immediate successor.[3] The Annals of Ulster, however, record the death of Conchobar, better known as St. Concors, in 1175, describing him as coarb of Patrick. He may have been elected archbishop, and have gone to the Curia to obtain papal confirmation, for there is apparently no doubt that he died at Lemens, near Chambery, in Savoy, on his return journey from Rome.[4] But the omission of his name from L is good evidence that he never held the see.

The List gives "the bishop Húa Muredaig" as the successor of Gilla Meic Liac, no doubt rightly. But he must have retired after a short tenure of office; for he is to be identified with Amhlaimh húa Muirethaigh, who died in 1185. From the Annals of Ulster under that year we gather that after his resignation he became bishop of Cinel Feradhaigh (barony of Clogher, county Tyrone).[5]

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[1] *Ib.*, § 31.

[2] For the unsatisfactory character of the narrative of the Four Masters, see H. J. Lawlor, *St. Malachy of Armagh*, Additional Note C.

[3] *Chartularies of St. Mary's Abbey*, ed. J. T. Gilbert, i, 141; ii, 274.

[4] *Acta Sanctorum*, June, vol. i, p. 412 ff. The obit in the Annals of Ulster is omitted in two mss. O'Hanlon's Life of St. Concors (*Lives of Irish Saints*, vol. vi, p. 96 ff.) has no historical value.

[5] There is considerable confusion about this bishop. The Annals of Boyle and the Annals of Loch Cé have the entry under 1185, 'Amhlaibh hua Muiredaigh, bishop of Cenel Eoghain, quieuit.' But under 1186 in the latter we find a notice of him almost identical with that quoted from the Annals of Ulster on p. 352. It is possible, therefore, that he was bishop of Cinel Eoghain (i.e. the diocese of Derry); and there is a gap in the succession of the bishops of that diocese from 1173 to 1184 or 1185, in which Ware places him, identifying his successor Fogartach O Cerbaillain with Florence O Cerballain, who was bishop from 1184-5 to 1230. But is Fogartach ever latinized as Florentius? If Amhlaimh became bishop of Derry in 1173, he may have been promoted to Armagh in 1174, and after a short stay there have returned to his original see.

The List omits Mael Ísu húa Cerbaill, who is said in the Annals of Ulster to have been elected coarb on the resignation of Tommaltach (no. 62) in 1184. But the same Annals (MS. A) in the record of his obit (1187) describe him as bishop of Airghialla. The fact seems to be that while he was bishop of Airghialla (now the diocese of Clogher) he was elected to the Primacy, went to Rome for confirmation, and died soon after his return.[1] That Tommaltach resigned in 1184 is very unlikely, for he was archbishop till his death in 1201. It is more probable that there was a contest between him and Mael Ísu, which was decided in 1184 or later. It is possible that Tommaltach's name was added to the List before this litigation began.

APPENDIX.

THE LIST OF COARBS IN THE BOOK OF LEINSTER.

The list of coarbs preserved in the Book of Leinster occupies the last two columns of fol. 21 v (Facs., p. 42). The opening column is perfectly legible, and offers no difficulty. The discoloration referred to above (p. 316) extends over most of the last column. Further, the membrane is badly rubbed and creased in places, particularly down the margin; towards the end the surface is polished, but much defaced. The work of decipherment is thus rendered extremely difficult, much patience and repeated examination of the MS. in good light being necessary to confirm a reading. The best results have been obtained by the use of a reflecting mirror, recommended by Dr. Gilbart Smyly, who very kindly examined some of the passages with us. For the more obscure portions the evidence available is (1) O'Curry's transcript of fol. 1–79 of the Book of Leinster, preserved in the Library of Trinity College (Class mark L. 5. 20)[2]; (2) Todd's rendering of 1864

[1] Compare the Register of the Diocese of Clogher in the *Louth Archaeological Journal*, vol. iv, p. 239. From the Register it is clear that he did not become bishop till after the death of Aedh O'Cellaigh in 1182 (Annals of Loch Cé).

[2] In Dr. Abbott's Catalogue (no. 1428) it is erroneously described as a copy of Leabhar na hUidhri. We had in vain looked for such a transcript in the various Dublin collections, and are indebted to Mr. E. J. Gwynn for calling our attention to it, at the last moment, when about to go to press. An earlier acquaintance with it would have saved us much labour. Agreement in several minor errors and omissions makes it clear that it was on this transcript of O'Curry's that Todd based his version above referred to. The critical notes have had to be revised accordingly. The transcript (water-mark 1850) is executed in O'Curry's best style, with illuminated capitals. It is a pity he did not live to complete it, for it appears to be more accurate than O'Longan's Facsimile, and would have been a valuable aid in deciphering what is obscure in the original MS. It was probably made for the use of Dr. Todd, and is the volume described under no. 1456 in his Sale Catalogue, 1869: "Leabhar-na-H-Uidhri, a transcript by Eugene O'Curry from the original in the Library of the Royal Irish Academy, fol." Hence Dr. Abbott's error.

(*Life of St. Patrick*, 180 ff. ; (3) O'Longan's Facsimile transcript of the MS., 1880. Stokes's edition in the *Trip. Life*, p. 542 ff., having been made from the Facsimile, as already remarked, has no independent value. In addition to these, confirmation of illegible words can occasionally be obtained from the Annals. Indeed without these aids decipherment would be in some cases almost impossible. If the errors of the Facsimile are indicated in the foot-notes, it is solely to prevent possible misunderstanding as to a choice of reading.

The traditional date of the Book of Leinster being about 1160, it is obvious that our list, extending to 1181, the date of Tommaltach's accession, was not all written at one time. De Paor is of opinion that the later hand began after Cellach († 1129). It is difficult to say, as characteristic letter-forms in this portion, owing to the defaced state of the MS., are few, but a new hand may safely be admitted, and we think a still later for the last entry. It is noteworthy that the years of incumbency are not given after Cellach, further that a line has been left blank after Cellach and again after Mael Maire, from which it might be inferred that the entries were made at three times. The Lismore list (ending with Mael Maire † 1020), it would almost seem as if the group Amalgaid to Cellach was written *d'un seul jet*, in the time of Cellach, and the accidental omission of Mael Isu in the first instance would tend to confirm this view, the fact that the parentage of the coarbs is not given in this group. A similar blank is left (here also after Gilla Ch[illegible]ndeli. Viewing the column as a whole, it is observable that the writing is not quite uniform. With Amalgaid [illegible] the hand becomes more upright and less cramped, this feature being fairly well represented in the Facsimile. It would thus appear as if the original list had been resumed here. The initial letters, however, with their dabs of colour, seem to be pretty uniform throughout: but the colour may have been added later.

The critical marks employed in this edition are angular brackets < > for [illegible] parentheses ( ) for illegible but attested letters: and square brackets [ ] for wholly illegible or uncertain letters.

[1] In the Breviarium, fol. 13 v (Facs., p. 26), published by Todd (*loc. cit.* 184 ff.), and by Stokes (*Trip. Life*, 512 ff.), Mr. Lucius Gwynn has drawn attention to similar additions carrying the entries down to 1199 (*Eriu* viii. 114 ff.).

Comarbada *Patraic*.

(LL. fol. 21 v°, col. c.)

Patraic .luiii. o thuidecht *Patraic* i nHer*inn* co eistecht.

Sechnall *mac* Restituit <.xiii.>

Sen-*Patraic* .ii.

Benen *mac* Sescnen .x.

Iarlaithe *mac* Trena .xiiii. o Chluain Fiacla.

Cormac .xii. primus ab*bas* de chlaind Chernaig.

Dubthach .xiii.

Aili*ll* .xiii. primus.

Aili*ll* .x. *secun*dus. ó Druim Chád i nHuib Bressail don da Aili*ll*.

Duach .xii. de H*uib Tur*tri.

Fiachra <.x.> *mac* Colmain *meic* Eogain a hEnuch Senmáil.

Feidilmid .xu. h*ua* Faelain o Domnuch Nemand.

Caurlan .iiii. o Domnuch *meic* hu Garba dÚib Níallain.

Eochaid *mac* Diarmata <.iii.> o Domnuch Rigdruiṅg.

Senach Garb <.xiii.> o Chluain h*ui meic* Gricci de Uib Niall*ain*, *edón*[1] gobai i ngraid o Chill Móir.[2]

Mac Laisre .xuiii.

Tómmine .lxxxiii.

Segini <.xxuii.> *mac* Bresail o Achud Chlaidib.

Forannan .i.

Fland Febla *mac* Scanlain h*ua* Fíngin <.xxuii.>

Suibne <.xu.> *mac* Crunnmael *meic* Ronain dUib Niall*ain*.

Congus <.xx.> scribnid. un*de* torad penne Congusa, *edón*[3] h*ui* Dasluaiga <*edón* mensa> *meic* Ainmerech a Cuil Athgoirt.

Céle Petair <.uiii.> o Druim Chetna i nH*uib* Bresail.

Fer da Chrích .x.

Cu Dinisc <.iiii.> *mac* Concais h*ui* Chathbath *meic* Ech*ach*.

Dub da Lethe *mac* Sinaig .xuiii.

Airectac <.i. bl*iadain*> h*ua* Faeláin dUib Bresail.

Faennelach <.iii.> *mac* Moenaig Mannacta is e docer la Dub da Lethi oc Rus Bodba, un*de* d*icitur*.

❖ Faendelach aness
is é a less. teclaim sluaig
Dub da Lethi *mac* Sinaig
do fail[4] co rigaib a tuáid.

Condmach <xiii[5].> *mac* Duib da Lethi is e sin in *mac* i ndiaid a athar, ut proph*et*auit Bec *mac* De.

(col. d.)

Artrí <.ii.> Is é rachoid martra ó Eogan 7 ó Niall 7 ó Suibni *mac* Sarnig.[6]

Eogan Manistrech .uiii. Eogan *mac* Anbthig com*arba* Patraic 7 Finniain. 7 Buite. anmchara Neill Glun*duib*. Trí airchinnig sunna ragabsat abdaine ar ecin nach armiter i n-ofriund *edón* Fland Rói *mac* Cummascaig. *meic* Conchobair ro éig assin charpat. et Gormgal *mac* Indnotaig.[6a]

Forannan .xuii. <*mac* Murgili. Murgel no*men* *matris* e*ius*.>[7]

Dermait <.iiii.> h*ua* Tigernain Is leis daratad[8] in t-anart et*ir* na gae[9] ac[10] Croiss Ardachaid 7 in t-imaire lossa 7 nir[11] rathcha coro lobsat ar met a sm(a)chta.[12]

Fethgna .xxu. *edón* Figlech[13] *mac* Nectain de claind Echdach.

Ainmere <.i. bl*iadain*. h*ua* Faelain.> iserígi[14] h*ua* Niallai*n* 7 sacerdoti Aird Macha.

Mael Coba <.u.[15] bl*iadain*.> *mac* Crundm(ael)[16] de muntir Cilli Moire.

Comarbada Patraic.

Cathassach m*ac* Rabartaic*h*[17] [. . . .][18] h*ui* Móinaich[19] de chlaind *Sh*uibni. marb na ailithre i *n*Inis[20] [. . .]

Mael Brigti m*ac* Tornain .xxxi(x).[21] com*arba* Patraic 7 Colu*im Chille* de chla*ind Chon*a[. . .][22] *edón* na hoentad.[23]

Ioseph .ix. m*ac* Fathaig de cl*aind* [ ] b[24] Gaelta di Dál Riattai.[25]

Mael Patraic <.i. bl*iadain.*> m*ac* Mail(i) Tuli .h.(?)[ ].[26]

Cathassach <.xx.> m*ac* Doligen[27] h*ui* Eog [. . .][28]

Muridach <.ix.> m*ac* Fergusa o Gl(inn)[29] Airind i Sleib Cul[. .]n.[30]

Dub da Lethi m*ac* Cellaich .xxx(ii)i. Deolaid[31] ingen Maeli Tuli[32] .m̄. se(?) [ ] o Inis Cain Dega m*athair* Duib d(a) L(ethi).[33]

Murican <.iii.> m*ac* Ciaracai*n* o Boith[34] Domnaig.

Mael Maire <.xix.> m*ac* Eochacai*n*.

Amalgaid .xxix.

Dub da Lethi[35] .xii.

Cummascach .iii.[36]

Mael Is(u) .xxu[ ].[37]

Domnall .xiiii.

Cellach.

Mael Maedoc[38] h*ua* Morgair.

Gilla Meic Liac *edón* mac ind fir dana.[39]

In t-epsc*op* h*ua* Mu(ri)daig.[40]

Gilla Chomd(e)d h*ua* Carai*n*.[41]

Tommaltach m*ac* Aeda[42] m*eic* Tairdelb*aig* h*ui* Chonchob*air*.

NOTES.

[1] The siglum .*i*. = id est is here and elsewhere extended *edón* to avoid confusion with the numeral.

[2] This line is written over Mac Laisre rather, as noticed by Todd ; but Senach's epithet *Garb* 'Rough,' would not be inappropriate to an ex-smith.

[3] .*i*. is unusually tall, more like *l*, and has three dots alongside, cp. Facs. We are unable to identify Da Sluaig (*sic leg.*) m. Ainmerech. The gloss *i.e. mensa* is obscure. Could *mensa* here have any bearing upon the obscure *Uddmensa* of the Kilmartrann ogham : *Uddmensa celi Nettasloni* (Macalister, Notes on certain Irish Inscriptions, R.I.A. Proc., C, xxxiii, 82 ff.)? *Da Sluaig* is a by-form of *Nad Sluaig*. The Húi Nadsluaga were one of the five *primthúatha* of Dál mBuinne (east of Lough Neagh, in Co. Antrim). See Book of Lecan, 268ᵃ, Book of Ballymote, 163ᵇ, where *h. Nadsluagda* alternates in the same passage with our form *h. Dasluaga* ; cp. also Book of Lecan, 286ᵃ, *h. Dasluaga*. This is probably the family of Congus. We owe the reference to Dr. Bergin. See also Hogan's *Onomasticon*, p. 331. *m. Nasluaig* occurs LL., p. 338c.

[4] *sail*, Facs., and perhaps MS., the scribe having omitted the tongue of the *f*.

[5] .*xiiii*. Facs.

[6] leg. Farnig. [6a] *Indnotaig, sic* O'C., Facs. *Indnataig*, M.S. ambiguous.

[7] *mur*[ ] Facs., final *l* is just legible ; *nomen* and *eius*, read by O'Curry, are still traceable.

[8] *Is he dar*, Facs., end of line. The sense requires *leis*, which can be read. The letter following *d* is not clear, looks more like *a*, *do*, O'C.

[9] The stroke over *gae* in Facs. should be deleted.

[10] *ic*, O'C.

[11] *niro*. Facs., *mur-* O'C. ; the line ends here rubbed and indistinct. Todd renders O'Curry's *murrathcha* as 'the parsneps' ; d.sg *murrathaig* occurs, Fél.[2] 88, MacCongl. 124, 19 'sea-fern' (?). We read *nir*, however, and Dr. Bergin, who has kindly examined the passage, thinks a verb is required.

[12] [*s*[ ]*ch*], Facs., *smachta*, O'C. *sm*( )*chta* can be deciphered. The passage should be rendered: 'It is by him the linen sheet was placed between the spears at Ardagh Cross and the ridge of leeks, and they did not . . . (?) so that they decayed owing to the greatness of its power.' Todd found the passage obscure. But the allusion is doubtless to the linen winding sheet with Christ's blood thereon, *anart co fuil Crist fair* (Trip. Life, 474 ; 7 *co folt Mairi Ingeine* (Rawl.) 'and with the hair of Mary the Virgin,' *ib.* 238) *sacratissimus sanguis Iesu Christi, Redemptoris humani generis, in sacri lintiamine* (Lib. Arm., f. 21 a), said to have been brought by St. Patrick from Rome, and one of the greater treasures of the church of Armagh. It was usual for the coarb to carry these precious relics about with him when enforcing the Law of Patrick, cp. Ann. of Ulster 733, 1196. On this occasion the tribute was evidently refused, and the coarb revenged himself by blighting the crops. The dues were known for a long time as Patrick's Ridges, as to which see King's *Early History of the Primacy of Armagh*, p. 31 f.

[13] *Seiginech*, Facs.

[14] *.iii. rigi*, Facs., looks like *ise*, but meaning obscure ; *ise*, O'C. Todd's rendering 'He was sovereign of the Niallain,' is grammatically impossible. Stokes has '. . . kingship of the Hui N.' Something has apparently been dropped. According to the Four Masters Ainmere was thirty years a priest before his election.

[15] *.ii.* Facs., *u*, O'C. *et rel.* MS. rather dubious.

[16] *ael* lost in a rent of the MS., but top of *l* preserved ; *ail*, O'C.

[17] *sic* O'C., Rabartaig, Facs. MS. rubbed.

[18] *.iiii.* O'C., *om.* Facs., MS. now wholly effaced.

[19] *mbinaich deth*[ ], Facs., but *chlaind* can be traced.

[20] *i nInis* legible, though omitted, without brackets, in Facs., read by O'Curry ; remainder rubbed.

[21] final *x* barely legible.

[22] 7 *Brigti*, Facs., *de cl-*, O'C. ; *de chl-* can be traced in good light, and also, with some patience, Chona[ ] leg. *Chonaill*, Mael Brigte being of the Clann Conaill Gulban.

[23] Facs. reads *dona hoe*[ ] ; *na* is certain, but the preceding letter, though somewhat obscure, is undoubtedly .i., and so O'Curry read *.i. na ho*, with *ss ud* tentatively added in pencil, 'i.e. of the O . . .,' Todd. The two letters after *hoe* appear to be *nt*, but final *ad* is pretty certain. Read perhaps *edón na hoentad*, 'i.e. of the union.'

[24] *Fa*[ ], Facs., but *thaig*, though somewhat rubbed, is pretty certain, also *de cl . . b*, *d*, with *e* ligatured at top ; *Fathaig de cl- ro-*, O'C. ; for *ro* leg. *Gairb*, MS. rubbed and illegible. Before *Gaelta* Facs. has ɔ = *con*, which is not in MS. 'Of the Clann . . . -gaeta (*sic*) of the Dalriattai,' Todd. A pedigree of Síl Gairb Gaela is given in BB. 114 f.

[25] *Riatta*, Facs.

[26] MS. very effaced here. *om.* Facs., *Mailitule*, O'C., and so Annals. *Mail*( ) can be traced, *t* and *u* indistinct, *li* fairly certain, but followed by what looks like *.li*, perhaps *.h.*[ ]a[ ], the clann name being illegible, though traces of letters discernible.

[27] *Maelduin*, Facs.

[28] *h.E*[ ], Facs., *om.* O'C., Todd ; *Eog* can be read, *o* somewhat obscure ; probably *Eogain*.

[29] *o Gl* is traceable, read *Glinn* ; *o Gl-*, O'C.

[30] This line has been badly misread by the Facsimilist as *m. indasluaga*, though *airind* is perfectly clear. *i sleib* read by O'C. is traceable, and with the aid of the Annals. *cul* : : *n*, i.e. Slieve Gullion, can be made out in good light.

[31] *Deolait*, Facs. *Deolaid*, O'C., Todd.

[32] *maelcuili*. Facs., with the following line unattempted; *mac*, read by O'C. is still legible, followed apparently by *s* . . . at end of line on a rubbed surface.

[33] read by O'C., but now almost wholly illegible.

[34] *both*, O'C.

[35] very faint, and *xii*. might be *xu*.

[36] iii. barely traceable, $\overline{m}$. Facs.

[37] Maelisu is on the same line as Cummascach, having been omitted at first. It is very effaced, and quite escaped the notice of O'Curry and Todd. The Facsimilist left it unread; *x*[ ]. Facs., xxuii, Y. B.

[38] *Maedach*, Facs. *Maedóc*, O'C.

[39] *dala*, Facs.

[40] *m*[ ]. Facs. *Muridaig*, O'C.

[41] *Gilla Coemáin* [ ]. Facs. Gilla choimdaid hua Carain, O'C. MS. very effaced here. Gilla in Coimded húa Carán, AU. L.Cé.

[42] Alla, Facs.

Notes added in Press.

P. 321. Flann Febla. 'Bishop Aed abode in Slébte. He went to Armagh. He brought a bequest (*edoct*) to Segéne of Armagh. Segéne gave again a bequest to Aed, and Aed offered a bequest and his kindred and his church to Patrick till Doom. And Aed left a bequest with Conchad. Conchad went to Armagh, and Fland Feblae gave his church to him, and he took himself (as) abbot.' *Lib. Armach.*, f. 18b (*Thes. Pal.* ii. 242; Stokes, *Trip. Life*, i. 347; *Facs. National MSS. of I.* i. pl. 27).

P. 325. Dermait húa Tigernáin, coarb of Patrick, he it is who added these four quatrains, or it is the quatrain of Patrick and Brigit *tantum fuit*. *Lib. Hymn.*, scholiast's note on Colman's Hymn. (*Thes. Pal.* ii. 305; ed. Atkinson, i. 30, ii. 121, where *húa Tigernain* is wrongly printed *nati Germain*, 'son of German.')

P. 327. Mael Brigte mac Tornáin. The 9–10th cent. Gospels of Mac Durnan (Lambeth Library are associated with him, fol. 3v (Westwood, *Palaeogr. Sacra*, pl. 13; Todd, *R.I.A. Proc.* i. 40; *Facs. Nat. MSS. of I.* i. p. xviii).

P. 330. Domnall. "A prayer . . . for Domnall, coarb of Patrick, by whom it was made . . ." Inscription on the shrine of St. Patrick's Bell, in R.I.A. Collection (Coffey, *Guide*, p. 49).

P. 338. Dubda Letine. The Saltair na Rann was composed during his incumbency. (Ed. Stokes, ll. 2361–4.)

X.

THE ASSEMBLY-PLACE OF 'OENACH CAIRBRE AND SÍD ASAIL AT MONASTERANENAGH, COUNTY LIMERICK.

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The great importance of the remains in eastern County Limerick and the mass of very early and illuminative tradition, some evidently in its origin going back to pagan times, led me to lay several long and complicated Papers before the Academy and other Societies.[1] The subject of the local cultus of the Irish gods and their sanctuaries was nearly altogether neglected by Irish antiquaries; and, with little confidence in my own ability to deal with it with any degree of completeness, it seemed desirable to make a beginning.

'Oenach-Cairbre, 'Oenach Orbecc, or 'Oenach Beag.

The fourth of the chief assembly-places of what is now Co. Limerick lay at Monasteranenagh, to which it gave its name. It is on the northern bank of the Cammoge. About a mile and a half to the north-west of the Abbey bridge rises Dromassell, or Tory Hill. It seems extremely probable that the places named along with this hill in our literary sources, *Síd nAsail*, *Ceann Duin Asail*, and *Sidán maige Asail*, represent an important fort and sacred mound which lay somewhere near the *'Oenach* or assembly.

The predominance of the name "Asal" at Monasteranenagh lays on us the necessity of research into the legendary material gathered round it.

Asal.—The "Sons of Umor," of the Fir Bolg, have acquired more than their meed of fame, owing to O'Donovan and Petrie (and still more their followers) having based an entirely unfounded theory of the origin of the endless ring-walls of western Ireland on the legend. The "proof" is presumed to rest on a poem of MacLiac, the chief bard of King Brian, who died in 1016.

[1] *Supra*, xxxiii, p. 444; xxxiv, p. 47, p. 127; Roy. Soc. Antt. Ir., xlviii, p. 111 [xlix, p. 1]; North Munster Archaeol. Soc., iv, p. 122, p. 157. See Soc. Préhist. Française, xvi, p. 343.

The lost "Book of Glendaloch"[1] gives a list of the so-called "servile" (i.e. "non-Milesian") races. It includes Tuath mic Umoir, Tuath Gebtine (at Inis Gelltine, or Askeaton, Co. Limerick), Tuath Resent Umoir, Tuath fer Ninais (Corcomroe "Ninnis," Co. Clare), Tuath fer Ninais, in Aran; Tuath mac Umoir, in the Dalcais (probably at Dromassell), and in Ui Fiachra Aidne, and a number of tribes in Co. Limerick—the Tuath Cregraige, Seinrighe, Crichraighe, Braghraidhe, Corca Muighi, and Corca-Muichi (Corcamuckla, near Newcastle West); Tuath Mairtine, in Muscraighe Mitaine; Tuatha Ui Cathir and Ui Corra, at Corca Muichi, and also in Corca-baiscinn (Co. Clare); and the Tuatha Oiche Corcaoiche, also near Newcastle West, Co. Limerick, along with the Corca Dega and the Benntraige in Luachair and the Ciarrhaige.

The true position of the Magh or Clanna Umoir has not yet been fixed.[2] In the days of the preponderance of the "solar myth" the warriors were "darkness gods" defeated in the west by the "sun heroes" of Tara. Others regard them as an apparently real tribe Resent Umoir, dwelling on the coast of Clare (?). Rhys argued for the identity of Oengus mac Umoir and his daughter Macnia with Oengus of the Brugh, to whom Maistiu was unfaithful. At least in that extraordinary insertion in the Táin bo Cualnge, "The Debility of the Men of Ulster,"[3] we find Oengus the Fir Bolg in a group of solar-type gods—Lug the Morrigu, Ane, Ogma, and Roth—but along with many less supernatural heroes. This, with other hints and the connexion of Oengus son of Umor and his family with Brugh on the Boyne, suggests at least a possibility of the two namesakes being the same person, and both heroic or godlike and not men. The sons of Umor were connected with several notable forts and connections—Oengus, with the huge cliff-fort of Aranmore, Dun Oengusa, "contrasted with 'Dun Conor,'" in Inishmaan; "Ennach beside Duel" with the cliff-fort of *Dun*, near Kilfenora, at the source of the Duelach; Aran with the tumulus of Magh Adair; Asal, with the *Súd* [illegible] Maistiu, with the great earthwork of Mullaghmast; and all with Tara, Dealbna Uisnech, Tochtga Cruachan, and the Brugh. The tribe came from the land of the Picts under the protection of Cairbre Niafer, who gave

[1] Professor [illegible] W. K. Sullivan in "Manners and Customs of the Ancient Irish," pp. xxvii, xxviii. Cf. list from Egerton ms., Rev. Celt., xx, p. 336.

[2] The Four Masters make Cical grandson of Ughmor a Fomorian, B.C. 2670.

[3] Hull's Longes, iv, p. 150. Maga, daughter of Oengus of the Brugh, was mother [illegible] and grandmother of Cuchullin (Miss Hull, "Cuchullin Saga," p. lvii).

[4] Tr. Dunn, pp. 303-4.

[5] Some versions of the poem give *dún* for *tech*, but in any case a chief's "house" implied a "fort" in 1014.

them the great sanctuaries just enumerated. If we take the tale literally, nothing can be less probable.

Apart from the other chiefs and their settlements, and probably not in the original legend, we hear that

> "Asail came out of the North, over the waves,
> As far as Munster of the great doings.
> Out of the North he came in his galley;
> From him is lovely Druim Asail named.
> . . . . . .
> That is the settling of the host,
> Even of all the household of Umor."[1]

Ross, son of Deda, of the predominant Ernai, became one of their securities. Asal is not named in the prose version, and as Connacht stopped at Linn easa Lomanaig (or Curragower), at the later City of Limerick, in the definition of the Tain bo Flidais, Medb could not have been supposed to have given lands so far south as at Dromassel. The other settlements (whether Murbech, Dael, and Taman were in North Mayo or in Co. Clare and South Galway)[2] were at least all in Connacht. From all this it seems evident that Asal should be regarded (like Maistiu) as apart from the rest of the Umorians.

We have always to face the problem of legends of the same person with different parentage and residence, so it may be well to note, without assertion of identity, some at least of the various persons named "Asal." King "Asal of the golden pillars" owned wonderful swine, which could be killed and eaten each day and reappear intact on the next occasion, like those of Manannán mac Lir, or the heavenly boar, "Saerhimnir," in the Edda. Asal, son of Dordonblas,[3] gave his name to the important ancient highway, Slige Asail.[4] Asal, a slave of Eremhon, appears in the traditions of the first Milesian settlers.[5] "I said, Ye are gods . . . But ye shall die like men," seems the text on which the Euhemerists modelled their editing. They give us every stage of the deepening twilight of the gods, from god to hero or druid; from druid to *druth* or jester; and on to monster or devil—all can be seen in Irish

[1] Metrical Dind Senchas (ed. Gwynn, Todd Lect. Ser. x), pp. 440–9; Asal, p. 445; Maistiu, Rev. Celt., xv, p. 334.

[2] The Dael in North Mayo and the Daelach in Co. Clare (Dahilyegh, 1590); Tawin Island, Galway Bay; Tawin Loch, on Clare Island, Co. Mayo; Murbech, in Tirawley, Mayo, and in Aranmore. There was a historical settlement of the Fir Bolg in Ui Fiachrach Aidne, on the edge of Co. Clare, exterminated by Dui Tenguma, King of Connacht, late in the fifth century.

[3] "The Road of Assal, son of Dor Donn," Metr. Dind S. x, p. 281.

[4] Rennes Dind Senchas (Rev. Celt., xv, p. 454).

[5] Leabhar Gabhala (ed. Macalister and MacNeill), i, p. 263.

literature.[1] The older writers were more candid. "Although we enumerate them, we do not worship them," says an ancient poem on the Tuatha Dé in the Leabhar Gabhala.[2] Cormac's Glossary and the older sources never scruple to tell us that the beings were *gods* of the old Irish; and till our writers have the courage to assess the "revision" at its true value, progress in knowledge of the genuine mythology of the Celts must remain at a standstill.

Another Asal was a personage of great importance to early tradition, but blurred and vague in its later recensions. We have a settlement of the Fir Bolg (apart from the Mac Liac story) at a *Magh Asail* in Meath; the Feara Asail in West Meath; and this group of names, Druim Asail, Magh Asail, Síd nAsail, and Sidán Maige Asail, in Co. Limerick. The Book of Rights marks the importance of *Asail* by claiming it as a "king-fort" for the Kings of Cashel.[3]

Magh Life and Magh Asail interchange in the Mog mac Nuadat story as Ailinn, Almu, and Magh Feimhin do in the fort-building tale of Nuada and Eogan "Mog Nuadat" in the "Battle of Magh Leana" and "Coir Anmann."

One notices a very curious and intimate relation between Meath and mid-Munster in many of these traditions,[4] so strong as to suggest that the tales are the same legend with a change of locality, and I think the probabilities are greatly in favour of the *Magh Asail* of these tales being in north Munster. Eogan "Mog Nuadat," King of southern Co. Tipperary, at Magh Femén, defeats the Ernai, and then turns his arms against Conn, King of Tara, in the mid-second century. Two of his successive battles were at Dáilas Grían (about fourteen miles eastward from Tory Hill) and Asal. The Dergthene, with their fair hair and blue eyes, were clearly, as their tradition claimed, of like blood to the folk at Tara, among the dark Ivernian or Fir Bolg tribes, so we can believe that these two conquering races met, fought, and patched up some agreement as to "spheres of influence" which was never forgotten, but met the fate of more formal written treaties when temptation and opportunity met. I cannot but think the Magh Asail was

[1] *Supra*, xxxiv, pp. 136, 139, 149, 151, and 169; note 'Aine's poisonous blood, Coir Anmann (Ir. Texte, iii, pp. 305-7).

[2] *Loc. cit.*, p. 163. A favourite recipe was to add a "redeeming verse," see Rhys, Journal R. Soc. Antt., xx, p. 652; Metr. Dind S. x, pp. 25, 65, 183, 205, 313, 347, 375, 399, 431, 449, and 467; and the "geasa poem," Leabhar na gCeart, pp. 1, 25; Celtic Review, x, p. 65, etc. Gods are made into foster-fathers, as with Net and Mog Neit (Coir Anm., p. 299), and "Nuada and Mog Nuadat" ("Battle of Magh Leana," p. 3).

Magh Asail, see p. 89; the "Eric of Fearghus Scannal" has Aenach Cairpre, p. 91.

[3] The tales of Crimthann Nia Nair, Mog Nuadat, Asal, and the sons of Umor, Mog Corb, and Fer Corb, and "Battle of Drom Damhgaire," for example.

the place in the line of the later northern limit of north Munster, and was fixed by this battle before historic legend took firm shape. If I be right, this confusion between places of the same name and probably the same "pre-Milesian" tribe in Counties Meath and Limerick affected the legend of the Clann Umoir, and led Mac Liac (who, perhaps, had been with his patron, King Brian, at Tara and Tailltiu, through Meath) to put in all the places of note he could remember in that kingdom, without regard to fact or probability, bringing down other places, actually named in the older versions, from north Mayo within the horizon of his audience into Co. Clare. This also explains the hesitancy as to "Mog Mac Nuadat's" relation to King Conn [1] in the other tale of the cattle plunder.

We must remember that Eogan was not only "Mog Nuadat" (devotee), but "Mac Nuadat" (son of the god), as the tribal pedigrees attested. So also we can place the pedigrees of the Corca Laegde from the Dergthene stem in comparison with those of the Ui Fidgeinte, the Cianachta, the Dealbna, the Caenraige, and the Tradraige as "politic pedigrees" to legitimatize by affiliation those free tribes whom the Dergthene found it easier to conciliate than to subdue. The name Dromassell existed among the peasantry, at Attyflin, in sight of the ridge, till about 1876. In later years it seemed lost, about 1885, in the same place, but is now renewed. It is found from at least the tenth century onward in practically unbroken record.[2] Let it suffice to name, in 1289, the lawsuit of Juliana, daughter and heiress of Maurice FitzGerald, with Henry Berkeley, when she claimed Drumassell. In 1311 was a later lawsuit, after which the Berkeleys held it (at most Brian Duff O'Brien claimed a quit-rent off it in 1583) till 1657. Francis Berkeley then sold to George Peacock "Cnoc Droum Assill, with a fishing weir, the castle, and Loughneguirra." In ecclesiastical records too we find the chapel of Drumassyll, belonging to Cromote (Croom) parish in 1418. The older peasantry at Attyflin—near it—told a story, like that of the Devil's Bit and the Rock of Cashel, where Satan bit a mouthful out of the plain (the hollow forming the basin of the lake), and dropped the mass beside the pool, making the hill of Dromassell. The name "Tory Hill" originated in the eighteenth century.

That the place was of old renown is evident, even if we cannot accept the Euhemerist chronologers' dates.[3] In "B.C. 1032" Sirna Saeglach, son of

[1] The intrusion of Conn Cedcathach into the later versions of certain tales is well shown by Professor MacNeill in Preface, "Duanaire Finn," pp. xxx, xl, and xlii.

[2] Leabar na gCeart, p. 92. Plea Rolls (1289), No. 14 of xviii Edw. I and v of Edw. II. Desmond Roll, 30, P. Rec. Off. Ir., Down Survey, B. 21, 24. Civil Survey, xxx, p. 5.

[3] "Annals of Four Masters."

Dian, after a "record reign" of 150 years over "all Ireland," died. He had won great battles at Ceann duin Asail and Moin Foicnigh in Ui Failge (not Offaly, but a district evidently in Co. Limerick)[2] over the Mairtine and Ernai, with others in Luachair, Claire, Samhain, and Cnoc Ochair, i.e., in Co. Limerick in the western Hills and at Dun Claire and Knocksouna, near Kilmallock. The later compiler thus moves back the name "Asal" at least 1000 years before the reign of Cairbre Nia Fer, in which "Asal" is placed in Mac Liac's poem.

The Legend of Fergus and Asal.—Asal mac Umóir, one day, sat on the [illegible], "Munster's central point, commanding Cliu Mhail," the conspicuous "hillock in the central plain of the province," as the extent was defined, after A.D. 377. Fergus mac Roig came to see him, and found him foretelling his own death, but Asal remembered his duties, and offered hospitality to his distinguished visitor. Fergus refused, but determined to try to watch the danger from his friend. He bade his charioteer drive him eastward and then southward from the hill. Reaching "the Ford of the Cliathe," Fergus "he stopped a little to the side of the road, and awaited events. At midnight the enemy at last appeared, and proved to be "a host from Spain." Thirty spearmen attacked him, and, though severely wounded, he slew them all and held his own. The rest of the army, however, swept past him, and their chariot guard, reached the house of Asal, slew him, and brought away his head.

Fergus, severely wounded, was taken to the house of Conchenn, son of Deda, [illegible] and nursed back to health. Hearing of his [illegible] Deda returned "from France" and cheered him; when the [illegible] "Spanish King" brought back his head and that of Asal to Drom nAsail, where [illegible] the heads of Febra and Cáin Dercedualach were "brought to Sid Crongi," left in sight to the south, avenging and appeasing the spirit of their dead friend.[4]

[illegible] the [illegible] their passages and the Cenel Failbe of the Dalcassian tribal pedigree.

[2] For the Deda family, see *supra*, xxxiv, p. 159.

[3] This is confirmed by Book of Ballymote, 30*a*, 22–42, which mentions Mend, son of Umor, the poet, and Mag nAssail, in Munster, named from Assal, son of Umor.

[4] "Book of Leinster," f. 202*a*, Silva Gad., ii, p. 528. For bringing heads to mountains, cf. at Cenn Febrat (Metr. Dind S., x, p. 247); Currech's head, on a hill over Bodamar strand (Silva Gad., ii, p. 262). Congal's was placed on the "duma" of a rath ("Eriu, v, p. 245), and Cairpre's on the mound of Sid Nennta (Aided Con Chulaind). [illegible] of invaders were distributed among the "hills" of Ireland (Irische Texte, iii, p. 314).

Now "France," "Spain," "Greece," "Hirualt," and "Lochlann" often replace less high-sounding names in later editions of early legends.

Perhaps the Ernai, or Ivernians, became "Iberians" from the "little learning" of the editor. We must note too that Conchenn, or Conganchness, son of Deda, avenged the death of Curoi himself, and was slain by Celtchair near Down.[1] What, however, concerns us more is that we have a legend of the earliest mythic cycle of the Red Branch which dealt most minutely with the place we describe. Crossing the country, we would naturally (were there no roads) sweep eastward under Dromassell, and then, about a mile further, near Fort Elizabeth, turn at right angles southward to the ford, where the bridge crosses the Cammoge, close to the Abbey. Below this is a shallow reach extending to the mill, at any point of which the stream could be crossed. The bend of the stream northward near the bridge presupposes that Fergus halted near the conjoined rings, where the ground rose above the long shallow reach of the Cammoge, too long to be defended by one hero. As usual in Ireland, even in the most mythic tale, the minute topography is most exact.

THE LEGEND OF ASAL'S CATTLE SPOIL.—A legend in the Ancient Law Code,[2] probably of Leinster origin, is nebulous, and evidently reached the redactor with variants. Possibly its heroes, Asal, son of Conn, and Mog mac Nuadat, are really Asal, son of Umor, and Mog Nuadat, of the Munster district, now Co. Limerick.

CAIRBRE.—'Oenach Cairbre may possibly be named from the Ui Cairbre Aobda, but I must emphasize the fact that the name "Cairbre" meets us (usually in a different setting) in nearly every outstanding legend connected with eastern Co. Limerick. The name, to begin, is that of a divinity, Coirpre, or Cairbre, who was child of Etan, the poetess; some said "he" was her *daughter* "Cairbre Aimet," who, like Etan's father Diancecht, was a physician. There was also a god Cairbre, son of Tuar, sixth in descent from MacGreine (son of the Sun) and Eriu (Ireland). In the *Tain bo Cualnge* we find the "two Cairbres of Clíu," south-eastern Co. Limerick; the *Bruden Da Derga*[3] tells of the two Cairbres of Tuad Mumhan (east Co. Limerick, not

[1] Metr. Dind S., x, p. 241. For the legend of the finding of the two pups of Celtchair's dog "Dael" in the victim's skull, see Rennes D. S., Rev. Celt. xvi, p. 53.

[2] Vol. i, pp. 64, 68, 70, and 74. Asal's father is not named in text, only in the comment, which is very confused. See "Three Irish Glossaries" (W. Stokes, 1868), p. 9. A significant story of a quarrel between St. Patrick and a later Mog mac Nuadat (*?* a priest of Nuada) is found in Senchas Mór (i, p. 5).

[3] Rev. Celt., xxii, p. 31.

yet Co. Clare), foster-brothers of Conaire; Coirpre Gnathcoir and Cairpre Nia Fer appear in the Asal Legend: Daire Cairbre was ancestor of the Ui Fidgeinte: Cairbre Muse, ancestor of the Muscraige, was granted eastern Co. Limerick by King Fiacha Muillethan at Knockainey; his brother, Cairbre Baiscinn, was ancestor of the Corcavaskin in south-western Co. Clare. We find near Dun Claire a Rath Coirpre and a Tuad Claire Coirpre,[1] and, lastly, we have Cairbre Aobda, ancestor of the Ui Cairbre tribe here. Of place names, we have a Loch Carbry on the Galtees, and this assembly of 'Oenach Cairbre. The King of Brugrigh is said to have been King of Ui Cairbre Aobda. Indeed, the district of Kenry, between the Maigue and the Deel, was *Comarba Ui Cairbre*. Here the Munstermen, under Eochaid, son of King Crimthann, son of Fidach, and Maige Mescorach, fought the fierce battle, where their opponent Fiachra got his death wound,[2] but they and the Ernai were defeated. There seems confusion between a battle in "A.D. 186" and another at the end of the fourth century, about A.D. 370. Evidently there was a lost but important legend which connected the district in the Maigue Valley with a hero, god, or demigod, Cairbre, one of the forgotten supernatural personages of Munster.

As to the tribe, Ui Cairbre Aobda, it was far more recent than these pre-Augustan settlers seemed to have been.[3] Fiacha Muillethan, grandson of Oilioll Aulom, had a son Oilioll Flann beg, who succeeded Mog Corb, son of his grandfather Conaire Cas, eponymus of the Dal Cais, in the kingship of North Munster early in the fourth century. Dair, son of this Oilioll, had a son, Fiacha Fidgeinte, supposed eponymous ancestor of the great western tribes, whose son, Bruide, had a son Cairbre Aobda. This tenth-century pedigree, however, is very doubtful. The Ui Fidgeinte were more probably a [illegible] and not earlier than the mid-fifth century. In fact, the Tripartite Life[4] mentions that the Hui Fidgeinte territory [illegible] Mairche Cuile Corb south of Carn Feraidaig (Carnarry), and therefore [illegible] Aos Dana.[5] The Ui Cairbre Aobda were seated at Bruree in later days.[6] Pedigrees which derive whole large tribes from one ancestor in the Irish literary tradition may be dismissed as non-historical documents. Indeed,

[1] "Tripartite Life of St. Patrick," p. 20, p. 350.

[2] Rev. Celt., xxiv, p. 185, from Yellow Book of Lecan and Book of Ballymote.

[3] Silva Gadelica, ii, p. 376.

[4] Extract from Saltair of Cashel in "Book of Ui Maine."

[5] For unfounded claims of relationship, see preface Duanaire Finn (Ir. Texts, ed. E. MacNeill); Book of Ui Maine, "Tract on Dal Cais"; also *supra*, xxx, p. 455.

[6] "Tripart. Life," p. 203.

[illegible] Hill was not identified with this for no other reason than its local name, Carn Feraidhe, from Fer I, son of Eogabal.

[7] Leabhar na gCeart, p. 85.

the Ui Fidgeinte themselves traced their pedigree from Daire Cairbre,[1] and, like the Ui Cairbre, do not appear to have ever asserted a claim to the kingship of Munster—conscious evidence of their being aware of an entirely different descent.

THE 'OENACH.—'Oenach Cairbre was also called 'Oenach beag, the Little Assembly,[2] in contrast, we are told (of course no reason is appended), with Nenagh: now this lay in quite a different tribeland, separated by the Uaithne and Aradha and the mountains of Slievephelim, from the assembly on the "Maig." More likely, 'Oenach Cairbre was the "little Assembly," because 'Oenach Culi was (as we know) the *chief* cemetery, and therefore the *great* assembly of the Dergthene; both were in the Dal Cais tribelands. It was very possibly once *'Oenach Asail.* As we saw, there were *Druim-*, *Mag-Síd-*, and *Sidán- maige- Asail.* O'Donovan and O'Curry, followed by Mr. Orpen, Father Hogan, myself, and most other writers,[3] confused 'Oenach Cairbre with 'Oenach Culi, or 'Oenach Clochair. When this latter was identified (as Mr. P. J. Lynch and I independently arrived at the same conclusion about it), the first stood out, without rival, as the Assembly which gave its name to Monasteranenagh. The Abbey stood in the land of Cenel mekin (an unknown tribe) across the river, and its charter does not grant it 'Oenach Cairbre, nor Dromassell, unless "Culoedir" be a horribly corrupt[4] copy for *Enocair.* Apart from the implication of the name and the (late) usage of Monasteranenagh as the popular Irish name for "De Magio" and "Abbey Maig," there is nothing known to me to show that the *'Oenach* was held after the Norman settlement. It may be thought that too much is said about old errors, but it is impossible to keep writers from falling back on long disproved identifications, while the hasty decisions of O'Donovan, eighty years ago, are uncritically repeated without contradiction, and (worst of all) get a new and lasting lease of their delusive career even in so important a work of reference as the Onomasticon Goedelicum.

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[1] Cormac's Glossary, p. 55.

[2] Of course the usual translation "fair" is quite inadequate for "'Oenach," as in Greece "Agora" was a place of assembly and also a market. It is not only a "fair," but an assembly for legislation, musical contests, races, and games, and it is probable, even in later times, that chariot races, as well as horse races, prevailed. Here at 'Oenach Cairbre we have a chariot name at the ford, and the chariot figures in the ceremonies of Tara, where the chariot course lay near the stone "Fál," and the "Slope of the Chariots" lay near. Tirechan uses the Greek *agón* for the 'Oenach of Tailltiu.

[3] "Manners and Customs," p. 14; "Irish Manuscript Material," p. 305; notes Ann. Four MM., Roy. Soc. Antt. Ir., xxxiv. p. 34; Onomasticon Goedelicum, pp. 513, 597.

[4] Hardly worse than "Dernaht" for Bunratty, "Duy" for Aine, "Eleuri" for Claire, or "Jolegar" for Uregare.

The Remains.

Examination of the Assembly places at Tara, Telltown, Brugh, Rathcroghan, the Curragh of Kildare, 'Oenach Culi, Temair Erann, and Knockainey[1] shows us well what we have to expect at a Celtic Assembly-place, Sanctuary, and Cemetery. We may find tumuli, cairns, ring mounds (probably one or more conjoined ones[2]), platform forts (simple or conjoined), old roads, and water supply. 'Oenach Cairbre fulfils all these requirements, and even retains (like Tailltiu) the very name "Enagh" in the compound. It has a confessed *Sid* mound called still "Sheenafinnoge"; a ring fort; conjoined cairns, or tumuli; and an ancient roadway leading to the last from the ford. As we noted, the *Mesca Ulad* calls the pool on the Cammoge, east of Knockainey Hill, "the Maig." The Abbey name "De Magio" confirms it for the reach at Manister; the name is now reserved for the larger river running, over a mile distant, to the west. The "Cam" in the lesser river's name is fully justified by its endless bends and loops. It joins the Maigue opposite to the old church of Anhid, above Croom. The road from the ford and Abbey Bridge leads to the fords of the Maigue at Cherry Grove and Rosstemple and on to Bruree.

Sheenafinnoge.—Near Caherduff, on the higher part of the long ridge running E. and W., on which Manister House stands, but just over the summit, we find the "holy mound," probably the *Sid Asail*, or *Sidán Maig Asail*. It is a conical mass of hawthorns, rising from rich meadow lands. The dark, whale-backed Dromassell rises behind, making an impressive background, with the pleasant woods of Fort Elizabeth at its foot. I am told there is no trace of an ancient cairn on its summit, as one might expect.[3] The thicket has modelled itself on a perfect little tumulus. This is girt by a shallow depression, rarely over a foot deep, and 5 to 6 feet wide. Such hollows were probably merely intended to define the holy ground. The *Sid* is from 10 to 12 feet high, slightly oval, with a flat summit, 15 to 18 feet across, or from 46 to nearly 60 feet at the base. A deep cattle track cuts into the platform to the east.[4]

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[1] For the last three, see *supra*, xxxiii. p. 463; xxxiv. p. 65.

[2] Such do not remain at Tailltiu or on the Curragh. However, the conjoined earthworks at Donaghpatrick and Morristown Biller respectively lie not very far distant.

[3] Such monuments are removed with surprising thoroughness, while some trace of a mound nearly always remains. Most of the missing monuments at Tara seem to have been cairns or stones.

[4] The following 'Oenach sites have each still a trace of the supernatural:—Temair Erann, in the appearance of lights at night; Knockainey, in the rites and apparitions of Aine; 'Oenach Cairbre in its *Sid*; Ballykinvarga, in its magic market-field, called "Mothair an amadán," for anyone who intrudes on it at night is fooled and cannot get

In the field to the east is a featureless ring mound, 3 to over 4 feet high, with large hawthorns here and there on its circuit, and no raised garth.

The name Sheenafinnoge, "the mound of the Royston crows," may be a casual name. On the other hand, recalling that the local princes claimed a descent from Macha (who, with her two sisters, the goddesses of war, embodied themselves as such birds), it may have a more recondite meaning. The confusion of identity between the spirits and the birds is absolute. One manuscript says[1] "it is false that the banshees are not demons; it is false that the royston crows (*fendoga*) are not hellish but aery demons." Yet we are told "the foxes and wolves double their cries, the *fendoga* double their screams, when Badb, Macha, and (Neman) the Morrigu approach."[2] Dairine

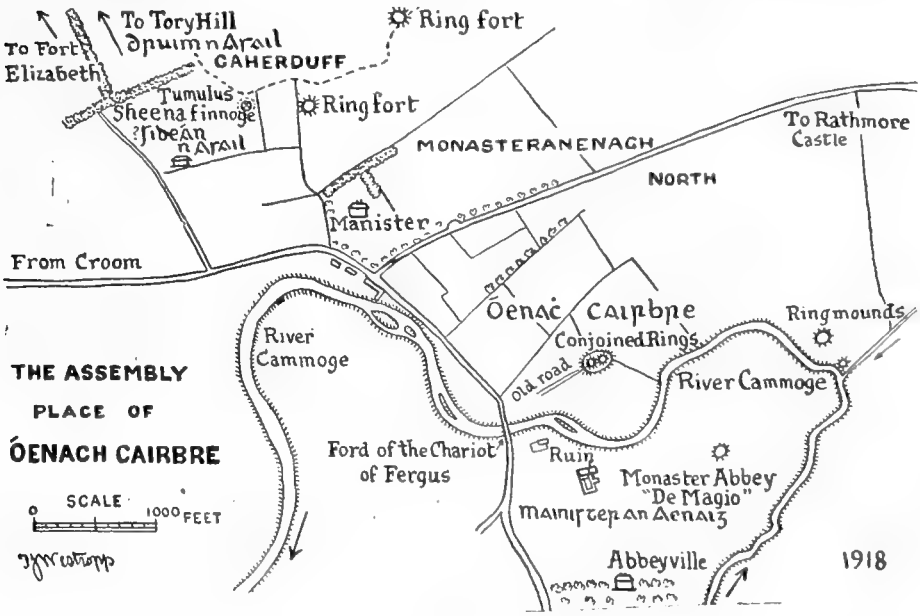

FIG. 1.

and Dergthene are the same in local pedigrees, and the former is identified with Macha,[3] Nith, Neman, and the Badb. While, as the "Wars of the

out. So those joining in the procession at Knockainey have to look first for the moon, or they cannot find their way home till after sunrise. I found no supernatural tale at Clogherbeg or Magh Adair.

[1] MS., T.C.D., H. 3, 18, in MS., H. 2, 17, the three "go to the Hill of Hostages" at Temair. Nemand confounded armies, Macha revelled among the slain, and the Morrigu (like Pallas in the Iliad) gave strength to her favourites.

[2] W. Maunsell Hennessy on "Irish War Goddesses," Rev. Celt., i., pp. 36 sqq., and Proc. R. I. Acad., x, pp. 425 sqq.

[3] Rev. Celt., xxii, p. 58.

Gaedhil" and the "Triumphs of Torlogh" show, the second chief line of the Dergthene had two friendly war spirits, the "lovely" Aibinn, of Craglea, and the loathsome and "dismal" Bronach of Burren, each anonymous, with opposite epithets. It may be that the Dergthene tribes reverenced Dairine and Aibinn (the great war goddess of their later home Craglea, and perhaps an epithet for the former) at 'Oenach Cairbre, as they reverenced the wife of one of the many *alias* forms of their divine ancestor Nuada (Necht) at 'Oenach Culi and the goddess 'Aine at Knockainey.

The Conjoined Cairns.—I cannot assert that (as seems to be the case in other places) this work, originally sepulchral or religious, was eventually used for residence. A rath (Raith Archaill) was used by the druids for their idols and altars in the time of King Dathi.[1] Still more caution is needed in discussing whether this work was the "chief fort," the *Cenn duin Asail*. It was evidently near it that Fergus was conceived to have slain the thirty spearmen. It stands on the southern edge of the ridge above the stream, a

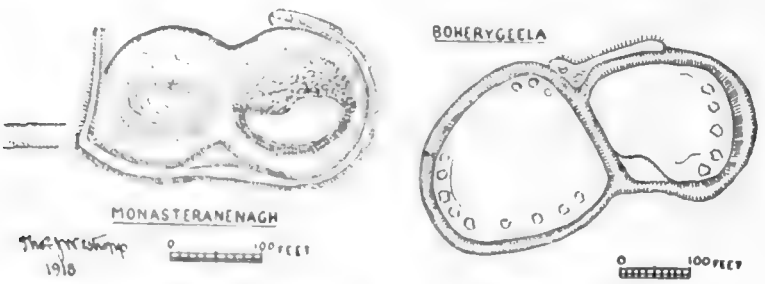

Fig. 2.—Conjoined Cairns and Mounds.

mass of green mounds and dense hawthorns. Most unfortunately the two mounds consisting mainly of stones,[2] tempted the road-makers to use it for a quarry, and more than half of each cairn has been carted away. Of course there was no intelligent person to record if a cist was found. Manister shows a bad record for vandalism. The fine arch and east window of the chancel lay where they fell before 1876, when I first saw them; nearly all of the material was taken by road-makers without hindrance.[3] The great tower at the south-west end of the nave fell about 1825, and was removed;

[1] Encyc. Relig. and Ethics, vii, p. 128.

[2] Looking for continental sidelights, I only find one case where three cairns touch within a rampart, at Malvgradina in Bosnia ("Bosnia Herzegovina," Dr. R. Munro, p. 189).

[3] Drawings of this fine window by John Windle and W. Wakeman are in R. I. Acad. Library, "Topographical MS." (R. I. A., 12, C. 5), and "Sketches for Co. Limerick in Ordnance Survey." I have another by my late brother, Ralph Hugh Westropp. See *supra*, vol. xxv, Plate XI. See also Roy. Soc. Antt. Ir., xix, pp. 232-8.

much of the domestic buildings had been taken to build the houses of Manister and Abbeyville and the mill and village. Until the vesting of the remains of the once noble church and the Chapter House as an "ancient monument" anyone could work his will on them. If this was true of a consecrated building, how little mercy could one expect a pagan monument to be shown?

The outer ring is well preserved to the south and east, and the outline of the fosse within it can be traced all round. It is "8-shaped" in plan. The ring rises from 4 to over 6 feet above the field, at which level it is 15 to 16 feet thick, being 8 feet to 10 feet thick on top, with steep sides, probably once stone-faced. The mounds are flat-topped. The southern parts are intact, rising over the fosse for 10 to 13 feet.

The whole work measures about 300 feet over all, east and west, and 180 feet north and south. The greatest depth is between 6 and 7 feet below the field to the south-east. The fosse appears to be from 9 to 14 feet wide in parts, up to 18 feet wide. The southern part is filled for a depth of 3 feet to perhaps 5 feet.

An old hollow way leads from it towards the ford, and is 4 to 5 feet deep and 8 to 10 feet wide below. There are traces of enclosures between it and the river. A field near the chapel is called Parknaree.

RATHMORE.—A small fifteenth-century peel tower, on a rising ground, about a mile eastward, appears to have justified its name by being beside a semicircular platform, over 6 feet high, on which the modern cottage stands in tufted trees. This is evidently a fort, but quite defaced by its later uses. There is a low, straight-sided earthwork south-east from the road near it. Two other rather small circular mounds lie east from the Abbey beside the river, while in a low-lying and at times flooded reach, south from Abbeyville House, I noticed, during the great autumn floods of 1918, a small, rounded mound. Probably none of these belong to the *'Oenach*. Its name clings to Manister alone, and there is no tradition of any gathering at any of them. Rathmore was the place where the archives of the unfortunate "Rebel Earl" were taken by the English. The castle seems to have been held by his tenant, Maurice Sheehan,[1] 1584.

FORT ELIZABETH.—Another overgrown tumulus, similar to Sheenafinnoge, lies between the last and Croom, north of the main road. Mr. J. Grene Barry was told that here "Queen Elizabeth was buried, with a golden sword

[1] *Supra*, xxv, p. 176. Peyton's "Survey" of the Confiscated Desmond's Estates, p. 13 b.

and axe by her side." It may be an outlier of the holy places of the ancient 'Oenach Cairbre.

Earthworks South from the Cammoge.

There are few earthworks of outstanding interest: (1) a curious group of courts, called the "Lisheen," low mounds, suggestive rather of the remains of a seventeenth-century court; (2) a small tumulus (cut across) at Clogher, with a low platform fort near it; and (3) an unusually large example of conjoined rings south of Rathmore.

The last lies in Boherygeela (O.S. Map 31) in low-lying, marshy fields, south of Meanus and the Cammoge. Owing to the small amount of material for the study of these problematic earthworks, I describe it fully.

It lies on the road from Rathmore to Caherguillamore, and, despite its apparently low site, has pleasant, distant views of Knockfirina, Tory Hill, and the Galtees. Its plan consists of an irregular, rather shield-shaped platform to the east, surrounded by a fosse. The western part is cut into a slight "rise" on the northern face, the rest terraced, like its neighbour, 4 to 5 feet over the low field, and a few feet lower than the rise. The western mound measures 190 feet across north and south, and 230 feet east and west. It had a parapet, now quite levelled, on which grow several large hawthorns. It is 110 feet long at its junction with the other wing. I saw no stone facing. The eastern wing is still more irregular, about 180 feet east and west, and 165 feet to 200 feet north and south, with a few bushes on its eastern parapet, and a wet fosse. Outside the north ditch was a bold outer mound, 9 to 12 feet thick and 5 to 7 feet over the fosse. The north cusp is 7 feet high, and well preserved, running into the usual angle between the platforms, and crowded with hawthorns.

It seems most improbable that this was anything but a residential "fort." It in no way resembles the disc-barrows of Cooloughtragh and Banteen, the rounded little tumuli of Knockainey, or the great cairns of Manister. No other earthworks are near it, and its site, though protective, is very different from those at 'Oenagh Cuh and 'Oenach Cairbre, where its nearest notable congeners stand.

Logadoon (O.S. 48).—The recent cutting down of the once impenetrable thickets round and on one side of this fine, low mote enables me to give its dimensions. The road from Kilmallock sweeps round its bushy outer ring, opposite to Kilbreedy church. The ring is from 5 to 9 feet high, and 15 feet below, to 6 feet on top. The fosse is usually 18 feet wide and 4 feet deep,

[1] Plan, *supra*, p. 374.

with several flooded reaches, and a spring in the south-east section. The central mote rises 16 to 18 feet over the fosse. Its rampart is 4 to 5 feet high, so the platform is 11 feet above the ditch. The top garth is nearly circular, from 70 to 72 feet across. The mound was stone-faced round for 6 feet up, and the outer ring was similarly revetted inside and outside. It is one of the large group of fourteen high platforms from Bulgadin and Rathanny to Slievereagh, and was probably residential.

XI.

DUN CROT AND THE "HARPS OF CLÍU," ON THE GALTEES, COUNTY LIMERICK.

By THOMAS JOHNSON WESTROPP, M.A.

(Plate VII.)

Read April 14, 1919. Published April 23, 1920.

The successive studies[1] of the forts and other very remarkable places connected with the ancient gods and the great assemblies of the tribes of the present County Limerick have expanded far beyond the limit laid down, even in 1917. I am on that account anxious to close the series by a note on the very important fort of Dun Crot and the great mountain mass of Crotta Cliach "the Harps of Cliu" which makes so large a figure in Irish mythology and legend.

The district of Clíu was notably "non-Milesian." The great tribes of the Uaithne, Arada, Ernai, and Muscraige hem it around. In its ambit (apart from the narrow "corridor" joining the Dergthene tribes of Cashel and County Clare) lie the Mairtine—the five allied races of the Margraige, Sibenraige, Greeraige, Calraige, and Gairgraige—with their sanctuary and meeting-place at Knockainey; and, along the flank of the Galtees, three little-known tribes: the Crottraige, Artraige, and Eatharlaige. Of the latter group, the last are still named on the maps in the Vale of "Aherloe"; the first, whatever be the real import of their name, evidently originated the name of the great mountain *Crotta Cliach*, which the Dergthene, from its resemblance to the word *crot*, a harp derived from a legend of a supernatural harper, Clíu.[2] The Mairtine tribe a terra including many of the above races, figured in the sagas of their rivals as expert fort-builders, as where ("A.D. 160") they aided Eogan "Mog Nuadat" and his patron, the god Nuada, to make a square fort "three high-mounted, deep-trenched baileys, three strong *dúns*, and three *murs* of assembly."[3]

[1] *Supra*, xxxiii, p. 480; xxxiv, p. 47, pp. 165–8.

[2] In order to shorten this paper, at desire of the Publication Committee, I omit the study of the history of the "pre Celtic" tribes and the many legends referring to the Galtees.

[3] Battle of Magh Leana, p. 3.

One other legend cannot be passed over in silence. *Clíu* was a harper, who, coming out of a *síd* or sacred mound, used to play on two harps before King Smirdubh.[1] The legend strongly suggests a variant of those tales where the Dagda (an outstanding god, whose son Oengus won his swan-bride in these very mountains,[2] at Loc Bel Draccon[3]) harps the seasons into being, or the Welsh Bron, who harps magic music in the underworld on the *croth*.[4] Thus Clíu endeavoured by his harping to bring a daughter of Bodb Dearg, the chief "pre-Celtic" god of Munster, out of her *síd* mound at Slievenaman.[5] Possibly little less mythical than these wild and most primitive stories is the alleged visit of St. Patrick to Eogan Redskin, King of Cashel, at Sliab Crot.[6]

A great undated battle, in which the Leinstermen overthrew and plundered the people of eastern County Limerick up to the Shannon, was fought at the foot of the mountain of Crot in Clíu.[7]

After the extraordinary wealth of legend the history seems brief and bald. Cellachain, King of Cashel, fought his third great battle with the Danes at Dun Crot (*circa* 950).[8] King Brian repaired the fort (about 1002-1012). Another battle was fought, in 1058, between Diarmait mac Mael na mbo and Donchad, son of Brian Boroimhe, at the mountain foot.[9] The Normans held the place precariously, for the Irish were strong in the wooded hills, despite the nearness of Galbally, "the English town," and Ballylanders, "the Londoners' town." Robert de Boseworth, late of Nathirlach, is named in 1369,[10] but Aherloe was virtually O'Brien land down to 1578. Dungrot and Arllagh (Aherloe) were confiscated from Morogh O'Brien, and granted successively to George Moore, 1587, to Sir E. Fitton, and to a branch of its native owners, under Donat O'Brien, the "Great Earl" of Thomond. In 1611 its fair and Court of Pie Powder were granted to Thomas Cantwell; his descendant, "John Cantwell, Irish Papist," lost them in the confiscation of 1655; Dungrot Manor, with its grist and tucking mills and its Courts Leet and Baron. "The river of Aherloe beginneth in the red bog of Ballybrien . . . and runs through Ballyaskane, between the Manor of Donnegrot . . . and

[1] Metrical Dind Shenchas (ed. E. Gwynn, Todd Lect. Series x, p. 224).

[2] Rev. Celtique, iii, pp. 347–355.

[3] Ancient Laws, Heptads, v, p. 277, gives, among "terrifying places," Loc bel draguin, or Loc bel set. See *supra*, xxxiv, p. 157.

[4] C. Squire, "Mythology of Ancient Britain and Ireland" (1909), pp. 17–27.

[5] Rennes Dind S., Rev. Celt. xvi, p. 76.

[6] Acallamh, Irische Texte, iv, pp. 230-3.

[7] Rev. Celtique, xxiii, p. 315.

[8] "Cathreim Cellachain Caisil" (ed Bügge), p. 87.

[9] Rev. Celt., xxii, etc.

[10] Rot. Mem. Scacc., No. 42, Edw. III, m 3.

the lands of Ballylondrie . . . and thence, through Galbally, towards the County of Tipperary—yields no other proffit but a few Trouts."[1]

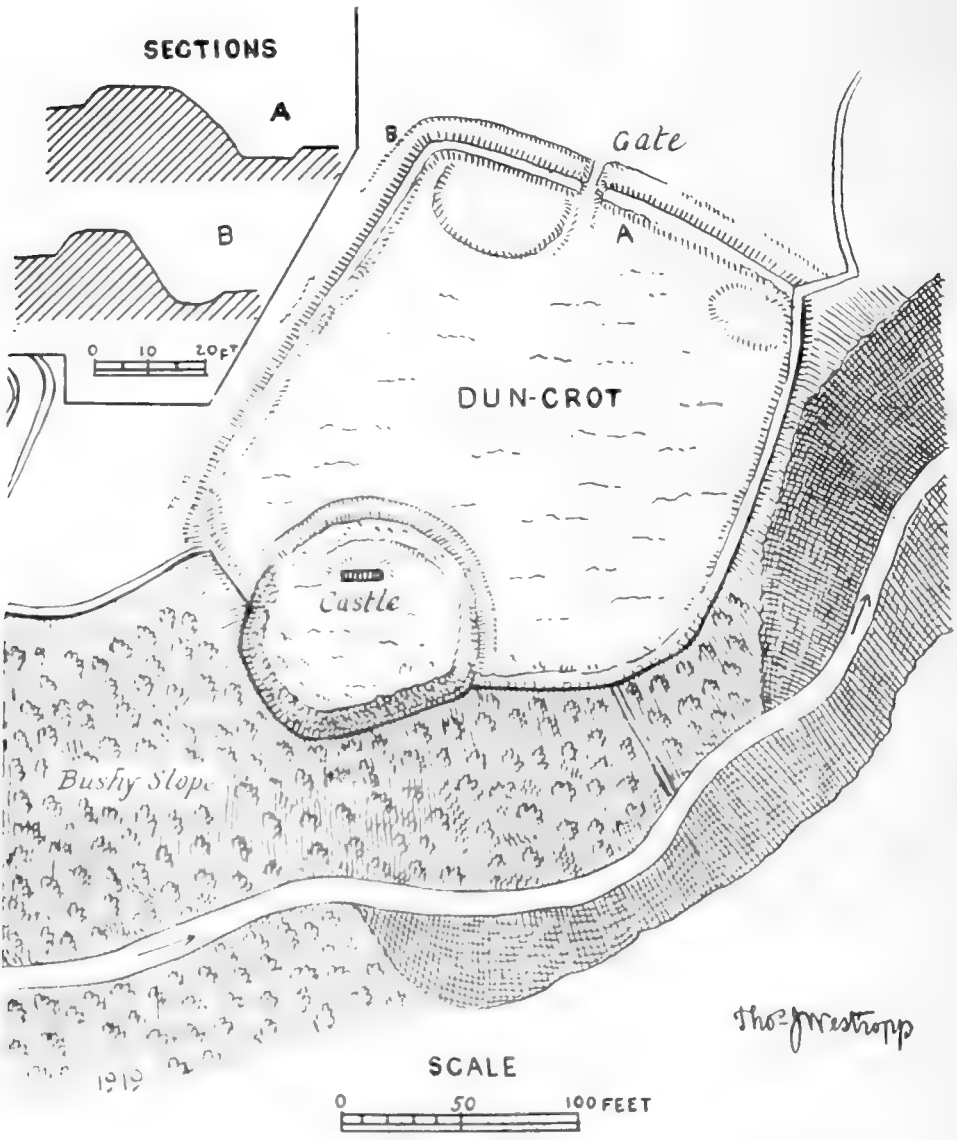

FIG. 1.

THE REMAINS.—Passing through Galbally, the beautiful pass opens before us with the tall [illegible] ivy and desecrated Convent of Moore Abbey.

[1] Fiants Eliz., 3317, 5932; Pat. Rolls, 1604, No. 141; Civil Survey, xxv, p. 4, p. 1; Down Survey Map, 50.

Winding through pleasant woods and crossing a parallel valley, we reach the plateau of the foot hills. On its angle, over a deep, bushy stream glen, rises a little fragment of wall, in curious outworks, the last relic of Dungrot Castle.

The outworks are a notable instance of the ingenuity of the old fort-makers in adapting natural features. The platform was naturally precipitous to the south and east, so they made a dry-stone revetment along it, and scarped and raised the landward faces into a high and efficient rampart, with a fosse along its foot. They carved and adapted a knoll in the south-west bend the same way, and levelled its summit. Examining the outer defence, we note the fosse, 9 to 12 feet wide, a few feet deep, but deepening eastward towards the gully. In the reach from the eastern edge is the gap of the old gateway, the entrance ramp rising to the platform: it is 6 feet wide, and lies to the north-east of the Castle. To either side of this are large, shallow, oval hollows, or house rings on the platform; that to the south-east abutting against the wall at the precipice. The other site lies to the north-west of the entrance. The garth here is 13 feet above the field; the rampart from 12 feet to 18 feet high outside, and about 25 feet thick at the base, and 6 feet to 12 feet wide on top. At the north it turns sharply to the south-west, curving back to the upper garth, and, as the natural rise of the field is not counterbalanced in the wall, the latter is rarely over 6 feet high at the neck, where it joins the upper ring fort. This has a bold scarp, 20 feet to 30 feet high, till it returns to the gully, and is somewhat irregular, generally speaking, oval, about 100 feet east and west and 90 feet north and south. Its revetment is from 3 to over 6 feet thick, and on the side of the outwork it usually rises about 10 feet over the fosse, which is rarely 3 feet deep and from 9 to 12 feet wide. Near the centre of the platform on the summit of the knoll stood the Castle tower. The whole foundation is not traceable; the fragment of the north wall is featureless, but of fair masonry, about 9 feet high, 15 feet long, and 6 feet thick.[1]

There is a fair and extensive view down the glen and the wide valley[2] of Slievenamuck, the open plain and the blue distances of Co. Tipperary. Behind us the great green and bronze flank, marked with the "Harps," on to the shapely peak of Temple Hill (2,570 feet high), at the western end, is seen in its noblest aspect.

Down the grassy slope, to the north-east, is a fine normal ring fort, thickly

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[1] See Plate VII.

[2] The view in Aherloe is accurately described in the "Pursuit of the Gilla Dechair." Silva Gadelica, ii, p. 293.

planted with hawthorns. It is of earth, with a fosse, 3 to nearly 6 feet deep and 12 feet wide; it has no outer ring. The rampart is 6 feet to 8 feet high, 15 feet thick; the garth is oval, about 187 feet across east and west by 116 feet north and south; it has no house sites or traverses, and it slopes gently towards the east, being nearly level with the main field.[1]

The Harps of Clíu.

The remarkable natural feature of the "Two Harps of Clíu" stands out as clearly on the mountain as in the legends of Crotta Cliach. To anyone who has seen them by evening light, when "the setting sun leaves a rich fringe of gold" on the edges, or in snow, when they stand out in strong silhouette, the resemblance is most striking, even from a distance like Knocklong. The eastern lies in Ballygeana; the western in Baunteen. The first "Harp" comes down in a shallow coomb, the thin parallel water-courses falling into a large curved catchment gully from the edge of the high plateau of Carrignabinnia, or Slieveeushnabinnia, 2,700 feet high, a flanker of Galteemore. The "Harp" is formed by the junction of five streams in the coomb of Lyre (*Ladar*, fork); beyond it, after crossing Glenageehy (breezy glen), the great western "Harp" of ten channels, from Carrignabinnia and Lyrenagappul (2,712 feet high), is reached. The eastern forms part of the bounds of Counties Limerick and Tipperary. The hollow between the mountains and Baunteen rings perhaps once contained a lake.

Conjoined Rings of Baunteen.

Two miles to the west of the castle, and just below the "Harps," is an interesting example of the somewhat problematical "conjoined rings," and near them remains of a cairn and cist.

By an old laneway, past a brook and a small earthen house ring (about 5 feet high and featureless), we pass the farmhouse, and turn across the fields, south-eastward, to a mass of hawthorns, on the grassy ridge of Baunteen. The western ring, though planted on both concentric mounds with large old hawthorns, is open, grassy, and easily examined. Much of its outer ring is levelled into the fosse; it is 9 feet thick, and rarely 2 feet high. The fosse is from 2 to 4 feet deep, and 9 to 12 feet wide below. The inner level platform is nearly circular, 68 feet to 70 feet inside, 78 feet to 86 feet over its ring, which is 6 feet to 9 feet thick. Between it and the eastern ring a deep drain has been cut through the drift clay of the ridge for

[1] Longford Bridge, below Dun Crot, is apparently named from another fortress (O. S., map 50).

a little stream, running northward; it is 6 feet to 10 feet wide, and only cuts through the neck of the "8-shaped" outer mound. The eastern ring is an impenetrable thicket of sloes and brambles; its platform is raised 5 feet to 4 feet high; the fosse is 2 feet deep, and 9 feet to 11 feet wide; its inner mound was faced with dry stone like the south ring at Cooloughtragh. So near as I could measure, it seems about 64 feet E. and W. The combined rings are about 209 feet over all E. and W.

A levelled cairn lies about 200 feet to the S.S.E.; it had a cist, and was

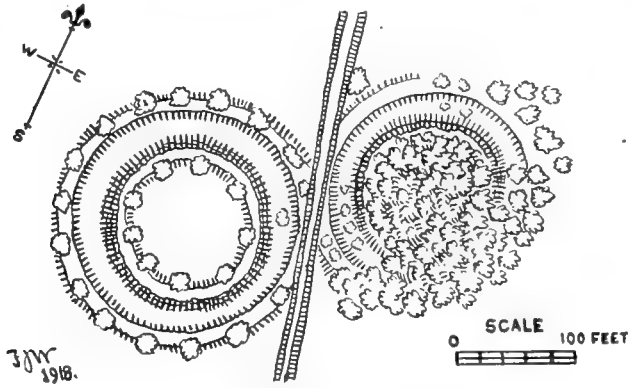


FIG. 2.—Conjoined Rings, Baunteen.

kerbed with blocks; it was 20 feet to 25 feet across; three of the kerb blocks mark out a semicircle. It consisted of small field stones, chiefly sandstone. The west end of the cist and the kerb blocks are of purple conglomerate; the first is 6 feet long N. and S., 2 feet thick, and 2 feet 8 inches high at present; the other end, and the sides and covers, with most of the small stones, and the wall of the eastern ring, have been removed for fences. Apart from the noble view of the "Harps" to the south, the high position gives it a distant prospect over Barna to Slievereagh and the more distant Seefin, behind Kilfinnan, in the Bealach Feabrat pass. To the north we see Duntrileague Hill,[1] and, through gaps, the faint blue mountains of Co. Clare and Tountinna over Loch Derg.

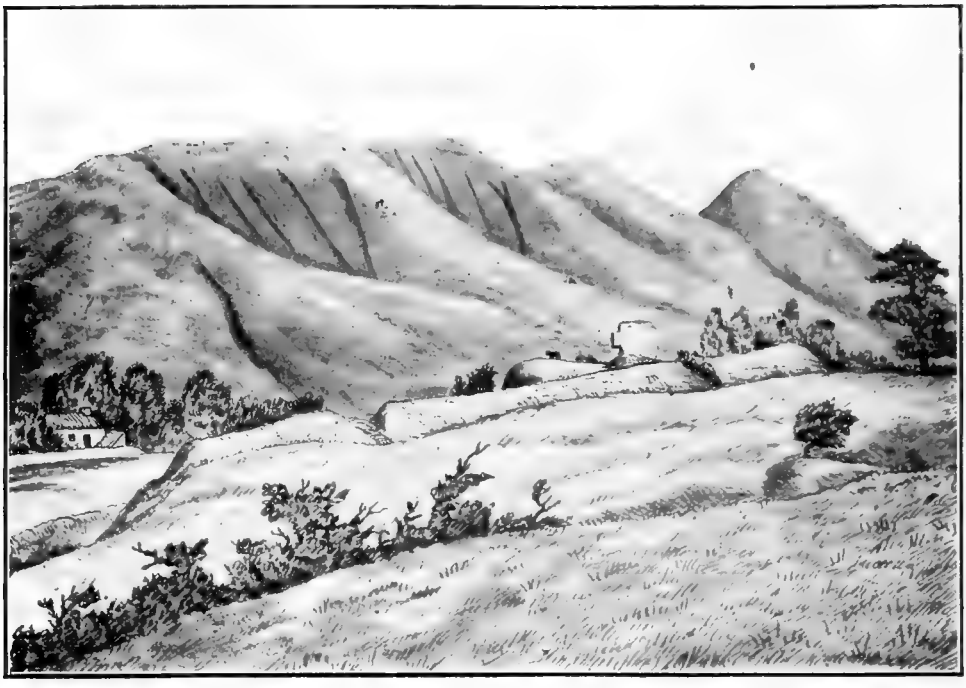
I close these notes on some 80 earthworks, well aware that many of the others of at least 2,150 forts in Co. Limerick are deserving of description. Still I believe that all the places of legendary importance, and probably examples of all the types of the central county of Munster, are included in

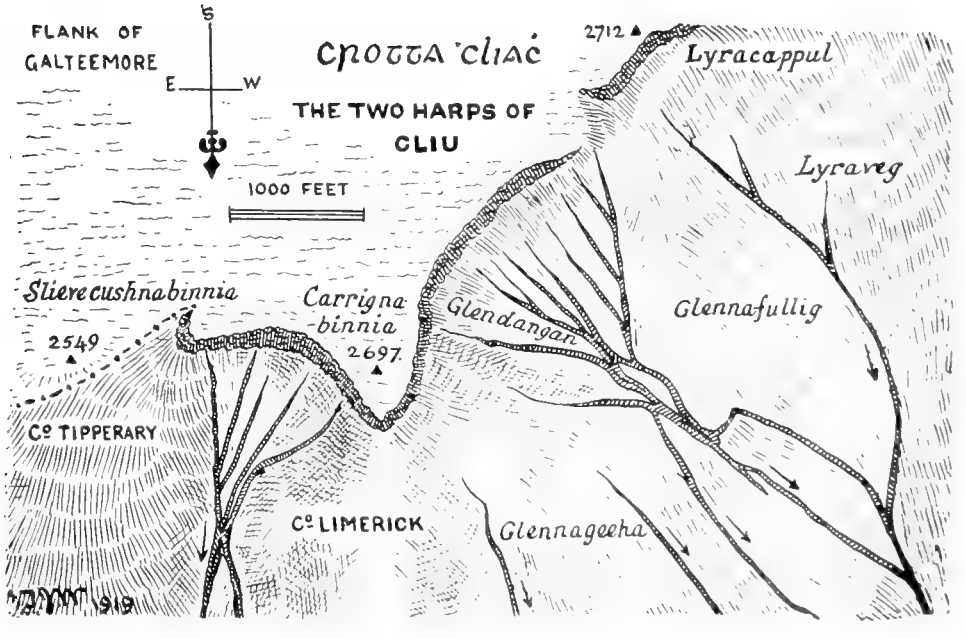
[1] *Supra*, xxxiii, p. 477.

this series of papers. The subject is far too vast for complete survey; over 29,000 "forts" appear on the maps of Ireland, and great numbers are unmarked. At most, we can only supply descriptions enough to indicate the character of these remains, so abundant in all parts of our island, and the literary allusions throwing light on their uses and origin.

CORRIGENDA.

Supra, xxxiii. p. 460, *for* "198" *read* "298", and *for* "200" *read* "400".
Plate xxxix, *change* "Enach Culi" at top left corner *to* "'Oenach Cairbre".
xxxiv, p. 165, line 12, *read* "daughter of Macconmara".
p. 179, note 4, *for* "N.-W." *read* "N.-E.".





WESTROPP.—Dun Crot and the "Harps of Cliu."

XII.

THE LANSDOWNE MAPS OF THE DOWN SURVEY.

By THE EARL OF KERRY, D.S.O.

Read February 23. Published August 25, 1920.

In modern parlance, a survey almost necessarily implies a map, but this was not so in the seventeenth century, and, although a good deal of Ireland had been "surveyed" before the year 1654, there were few maps then in existence. It was Petty who in that year first proposed to measure the whole country "by instrument," and to set it "down" upon paper. His undertaking thus came to be referred to at the time as a "down" survey,[1] and it has been called by that name ever since.

Rather more than a hundred years ago the Irish Records Commission, instituted in 1810, issued their reports on the Down Survey, and on such of the maps connected with it as were then known to be in existence.[2]

Some forty years later, in an appendix to his paper on the same subject,[3] read before the Irish Academy, Mr. W. R. Hardinge undertook an exhaustive classification and analysis of these maps in the light of fresh discoveries which he had made in the interval.

Meanwhile, in 1851, Petty's "History of the Survey," together with his "Brief Account" of the same subject, had been for the first time published from the original manuscripts by Sir Thomas Larcom.

Both the Records Commission and Hardinge hinted at the possible existence of maps other than those they had dealt with, but neither they nor, indeed, their then owner, were actually aware of a most important collection, which, after lying hidden for upwards of a century amongst the papers of successive Marquises of Lansdowne, has at length come to light.

[1] The term was not first used, as suggested by Hardinge, in 1658. It appears in both the reports of the Committee on Dr. Petty's proposals, Oct. 31 and Dec. 25, 1654. History, pp. 14 and 41.

[2] Third Report on the Public Records of Ireland, pp. 495–543, and Eighth Report, pp. 14–32 and 632.

[3] Transactions of the Royal Irish Academy, vol. xxiv. Antiquities, 1862.

It is as an attempt to explore the genesis of the Lansdowne maps and their bearing on the history of the Down Survey that this paper has been written.

The maps were at Lansdowne House in an old chest, where, to all appearances, they had long rested. With them were also found some letters and memoranda which show that they had been in Dublin, in the hands of the first Lord Lansdowne's agent, at the end of the eighteenth century. It seems probable that they were sent over to London after his death, and that they have remained there ever since. There can be little doubt that they form a portion of the original survey maps bequeathed in his will by Sir William Petty,[1] of whom Lord Lansdowne is a lineal descendant.

The maps are of two kinds, which for convenience must be separately dealt with:—

Part I.—Barony Maps.

These, as appears from a memorandum and list, dated 1797, then consisted of six folio volumes, numbered A to F, with 128 MS. maps (see Appendix I). The first volume, which contained twenty-five maps of Dublin, East Meath, West Meath, and Longford, is, however, now missing.

The fact that these volumes have come down directly to their present owner from the author of the survey would by itself be strong presumptive evidence that the maps are originals and not copies, but this presumption is reinforced by several other considerations.

Lists of the forfeited lands, with their acreage, forfeiting proprietors, and reference numbers to the maps which accompany them, are to be found in all the volumes. These "terriers" or "books of reference," as they are called, though otherwise corresponding with the later "books of distribution," do not make any mention of the persons to whom the lands were granted. This may be taken as proof that the volumes were compiled before the actual distribution of the land began, i.e. before the year 1661.

The maps at first sight appear to have been bound together without much regard to sequence of either counties or baronies. Baronies of the same county often appear in different volumes, while some counties and many baronies are not found at all. Closer investigation, however, shows that this is not a fortuitous arrangement, but that the sequence of the maps, generally speaking, corresponds with the order in which the baronies were actually surveyed.

[1] Hardinge, p. 112.

The survey, it will be remembered, was carried out in two distinct parts:—

1st. The "admeasurement" of those counties or parts of counties which were set aside for the satisfaction of the Cromwellian soldiery, and were mapped under the articles of agreement made between the Surveyor-General (Worsley) and Petty, dated December 11, 1654.[1]

2nd. That of the lands surveyed for the payment of the "Adventurers" under the Order in Council of September 3, 1656.[2]

It will be found that the Lansdowne volumes A to E all relate to the first section,[3] and that the maps therein bear the date 1655–6, while volume F contains a part of the lands surveyed under the second instrument, its maps being dated 1657 to 1659.

There can, therefore, be little doubt that the volumes were compiled between 1655 and 1659, while the survey was actually in progress, and that the maps were inserted in their places as soon as they came to hand from the surveyors engaged in the work.

But perhaps the strongest, as also the most interesting, evidence of the authenticity of the Lansdowne maps is to be found in the maps themselves. As is generally known, there are in the Bibliothèque Nationale at Paris two large volumes of these barony maps, which, though long recognized as copies, are important as constituting the only complete set in existence.[4] They comprise all the baronies of Ireland (215), except those of Roscommon, Galway, and parts of Clare and Mayo, which counties having been surveyed under Strafford's administration, and afterwards reserved for the transplanted Irish, were not dealt with in the Down Survey.

Now, while the Lansdowne maps were at the British Museum for the purpose of being cleaned and mounted, it was discovered by Mr. Chubb, of the Map Department, that most of them bore the indentations of a tracing instrument, the course of which, with the help of a magnifying glass, could be easily followed upon the paper. It was observed, moreover, that in many places (as might be expected) the line of the trace deviated from the true line of the map. Photographic reproductions of the Paris maps were then compared with the Lansdowne series, and it was found that the former in every case reproduced the line of the trace and not the true line of the latter. The source of the Paris maps is, therefore, explained, and, since they were copied from the Lansdowne volumes, the obvious inference is that these latter were considered at the time the original and authentic source for this purpose.

[1] History of the Down Survey, p. 23.
[2] History, p. 390.
[3] History, pp. 137–142.
[4] Hardinge, pp. 32, 33.

The history of the Paris volumes, as given by De Lisle, is not without interest.[1] He tells us that they were captured by the French at sea in 1707 on the ship "Unité," while on their way from Dublin to London, and that they were presented by M. de Valincourt, Secrétaire Général de la Marine, to the Bibliothèque Nationale. They afterwards disappeared, and no one knew what had become of them; but in 1727 they were once more restored to the library by the widow of De Lisle, the geographer, to whom, as it appeared, they had been lent by the Abbé Dubois. Hardinge says that at the time they were captured they were the property of Henry Lord Shelburne, Sir William Petty's son,[2] and there is every reason to believe that the statement is correct, for amongst other papers connected with the Down Survey "Two Great Barony Books" were bequeathed by Petty in his will,[3] and the description exactly fits the Paris volumes, while no other "Great Barony Books" are to be found elsewhere. It would seem too that the maps in these books had been destined for the engraver, and indeed they may have been on their way to London for that very purpose.

The series at all events is a complete one of 215 baronies, and all these, as well as the counties and provinces to which they belong, are in their correct sequence, while the frontispiece of the volumes, with its title "Hiberniae Regnum," is very similar in arrangement and design to the "Hiberniae Delineatio" which heads the volume of the county maps, as engraved and published.

A formal request was made in 1786 by King George III that the Paris maps might be restored to the country of their origin, and, on the refusal of the French Government, they were carefully copied by hand under the superintendence of Colonel Vallancey. The copies are at the Public Record Office, but it is perhaps not sufficiently known that modern photographic reproductions of all or any of these maps can now be obtained from the Ordnance Office for a trifling sum.

More than half of the original Down Survey baronial maps are thus accounted for in the Lansdowne collection, but it remains to be considered from what source the rest of the Paris set were derived. Here it seems we must have recourse to the maps which came to light in the first half of the nineteenth century, and which are now in the Public Record and Quit Rent Offices in Dublin.

Of the Public Record and Quit Rent Offices barony maps there are two distinct types.

[1] Cabinet des Manuscrits de la Bibliothèque Imperiale, 1868, Tome i, 333.
[2] Hardinge, p. 33.
[3] Hardinge, p. 112.

The first are mere outlines, which appear to have been intended as "key" maps, for use in connexion with the parish and townland surveys, and these need not be further considered at present.

The second class are, however, carefully finished maps, and of a type similar in all respects to those in the Lansdowne collection. There are some fifty-three of them in all (see Appendices II and III), of which twenty-two appear to be those which were discovered by Hardinge in the Auditor-General's Office in 1837,[1] while the remaining thirty-one are those referred to in the Record Commissioners' Report as being then in a volume in the Quit Rent Office.[2]

Amongst the former we find the Baronies of Wicklow and "Catherlogh," which though indexed are not present in the Lansdowne volumes, blank pages being left therein for their reception. On turning to Petty's History the reason for their omission is explained, for it there appears that these two counties should have been completed and certified by November, 1656 (under the earlier of the two contracts already referred to), but that unexpected difficulties in connexion with their survey caused their delivery to be delayed.[3] Odd numbers also of baronies wanting in the Lansdowne series now appear, and fall into their places, while of the whole fifty-four maps in the Public Record and Quit Rent Offices collection only one (Loghtee, Co. Cavan) is a duplicate, in the sense that it has already been found in the Lansdowne series.[4] Now Hardinge, under what must have been a mistaken impression (see infra), classed all these maps as duplicates or copies, but the conclusion seems to be irresistible that they, together with the Lansdowne series, go to make up what was once a complete original set from which the fair copies at Paris were taken.

This would "place" some 181 originals out of the 216 copies in Paris, as shown on the list appended in tabulated form (Appendix IV); and it will there be observed at once that the most important gap remaining is in respect of the counties of Cork and Kerry, which are scarcely represented either in the Lansdowne, Public Record, or Quit Rent series. The explanation of this hiatus seems to be provided in the following letter from Petty's son (Lord Shelburne) to Lord Carteret (the Viceroy), which has been found amongst the Lansdowne papers. It may be mentioned by way of explanation that Henry Petty had inherited, besides his father's fortune and estates, the materials of more than one dispute in connexion with the latter. The letter originates

[1] Hardinge, p. 27, and Appendix G.
[2] Eighth Report of the Public Records of Ireland, 1818, p. 632, and see Appendix III.
[3] History, p. 131.
[4] See Appendix IV.

from one of these quarrels as to a share claimed by some relatives of the Viceroy in the Petty lands in Co. Kerry, and refers to another with a certain Mrs. Bermingham, of which no details are forthcoming:—

I must acquaint your Excellency as touching the copies of the Down Survey to which you refer, and say you will allow as originals. I have them not, and they are the onely of any part of ye Kingdom I want. How that comes to pass I know but my conjecture, which is this:—

During the long and vexatious suit carried on by Bermingham against me, among many other her unwarrantable practices in the course of that proceeding one wee detected her in, very vile and notorious, which was proved in court.

She corrupted a footman of my late agents, now dead (in whose possession was all the deeds writeings &c relating to our family) to steal from out his closet all the papers he could come at, which might be serviceable to her in her suit—is probable she took ye vol of ye Kerry Survey which I have always missed and earnestly sought after. I pressed Mr. Thompson, Clerk of the Quit Rents to search whether he might not have borrowed it from my steward and diligently pursued all other likely means for ye recovery of this booke but all in vain. Perhaps should your Excellency bid application to be made to this woman she might produce it for your service. Till which is done I apprehend no surveyes either of your Excellency's or my naming can have ye least foundation to proceed.

(Henry Lord Shelburne to Lord Carteret, January 23, 1727.)

It is clear then that Henry Petty had, in addition to the volumes which have come down to Lord Lansdowne, another volume containing the maps of Co. Kerry, and it is not an unreasonable assumption that this volume would have contained, like its fellows, some twenty or more maps, and that the missing baronies of Co. Cork as well as those of Kerry were included in it.

Thus about 200 barony maps in all, out of a total of 216, may be said to have been accounted for in their original state,[1] and though the number actually extant is considerably less, it does not seem beyond the bounds of possibility that some of those still missing may yet be found.

In his paper read before the Royal Irish Academy, Hardinge insists that the original barony maps must all have been on a scale of forty perches to the inch,[2] similar to those which he discovered in 1837. He also gives it as his opinion that the distribution of land must have been made through the medium of such large-scale maps, and not by means of those of a smaller scale.[3] It is apparently on this assumption that (as we have seen) he labels all the small-scale barony maps which were extant at the time he read his paper as "duplicates."

It is true that the original "plotts" were made (as Petty himself explains in his "Brief Account" of the Survey) on the larger scale, and many of these

[1] See summary at end.

[2] Hardinge, p. 26. He talks of forty perches to the *square* surface inch, but this is clearly a slip.

[3] Hardinge, pp. 27-31 and p. 109.

still survive in the Public Record Office; but, except in the eleven large maps found by Hardinge,[1] the plots are of parishes, and not of baronies, while it seems obvious that for any but a small barony the forty-perch scale would have produced a map so unwieldy as to be useless for practical purposes. Moreover, these large-scale plots of baronies are "protractions" rather than maps, and indeed are so described by Hardinge himself in his list. It would seem therefore that these large maps were constructed, if at all, only for the purpose of obtaining the reduced maps, and that the maps so reduced as to be contained on a sheet of "Royal paper," 23 inches by 17 inches (e.g., in the case of parishes to a scale of 40 to 80 perches, and in the case of baronies to a scale of 160 to 320 perches), as described in Petty's "Brief Account" of the Survey,[2] and in his instructions to his surveyors, were considered then, and should be considered now, as the finished and original product of the Survey.

As to the distribution of land, there is no reason why this should not have been effected through the medium of the parish maps, if not through those of the baronies, but in any case by his contract of December, 1654, Petty bound himself when necessary to deliver separately "to each officer and soldier such mapps, plotts, and books of reference as shall manifestly demonstrate their several proportions of land,"[3] so no difficulty can have been experienced on this head.

It may perhaps seem strange that the original and finished barony maps should not have been "returned" to the Office of the Surveyor-General with the rest of the maps and papers connected with the Down Survey. It is, however, on record that Petty discharged his obligations in this respect, and that he received full quittance for the same from the Surveyor-General,[4] while the following passage in his will shows that he died in possession of these and of other maps and documents relating to the Survey, and that he attached great value to them:—"I value my three chests of originall mapps and field books, the coppys of the Down Survey, with the Barony mapps, and the chest of distribution books with two chests of loose papers relating to the survey, the two Great Barony Books, and the book of the history of the Survey, altogether at two thousand pounds."[5]

The explanation is to be found in the terms of Petty's contracts with the Government for the two portions of his survey and of his release therefrom, as also in the instructions given to his surveyors after the conclusion of the contracts.

In his first contract he binds himself "to survey all forfeited lands, profitable and unprofitable, . . . to survey the outmeares or bound of every

[1] Hardinge, Appendix E.
[2] History, p. xvi and p. 49.
[3] History, p. 26.
[4] History, pp. 182, 183.
[5] Hardinge, p. 112, and History, p. i.

barony to the end the civil bounds or meares of each barrony may be better knowne and preserved, and that perfect and exact mapps may be had for publique use of each of the barronyes and countyes aforesaid . . . to deliver unto the said Surveyor Generall his office . . . particular plotts with books of reference . . . of all forfeited lands . . . in any of the aforesaid barronyes."[1]

In his instructions to his surveyors Petty binds them "to surround the outmeare of each barony, even although there should be noe forfeited lands in the same, and therein to give the true place and scituation of each of the parcells by you admeasured."[2]

The delivery of the finished maps, however, constituted a separate undertaking, for we find that the Commonwealth undertake to pay Petty "at the returne or delivery in of perfect mapps of all the said barronyes and countyes"[3] the sum of £1,000, and subsequent evidence shows that this return was for various reasons never made.

The second contract (for the survey of the adventurers' lands) in September, 1656, though less elaborate than the first, is in similar terms.[4]

It appears therefore that there was no specific obligation, as stated by Hardinge,[5] in either contract to return finished or "perfect" maps of the baronies surveyed, but that Petty was only bound to produce skeleton or "outmeare" barony maps, with the "particular plotts and books of reference unto them belonging fairly engrossed of all the forfeited and other lands." These he returned in June, 1657, when he was "fully discharged of the said articles" by the Deputy Surveyor-General.[6]

These "particular plotts" on the original forty-perch scale, and the key or skeleton barony maps belonging to them, are, with the books of reference, now in the Irish Record Office.

The detailed maps were no doubt kept by Petty "to the end that," as stated in the contract, "perfect and exact maps may be had for the publique use," but he seems not to have received the "help and encouragement" he expected in this matter; and it would thus appear that he neither delivered the maps in question nor received the promised £1,000.[7]

In his "Political Anatomy of Ireland," written in 1673, though not published till after his death, he states that little account can be given of the Protestant (i.e., unforfeited) lands "besides what was collected by Sir William Petty, who at his own charge besides those maps of every parish, which by his agreement he delivered into the Surveyor-General's Office, he

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[1] History, p. 25.
[2] History, p. 47.
[3] History, p. 28.
[4] History, p. 390.
[5] Hardinge, p. 23.
[6] History, p. 183.
[7] History, pp. 399, 400.

hath caused maps to be made of every barony or hundred, as also of every county engraven upon copper, and the like of every province and of the whole kingdom, all which, could the defects of them be supplied with the yet unmeasured lands, would be exposed to public view."[1]

The barony maps were thus never engraved, though there can be little doubt that their publication was intended. They must, however, have been used in the preparation of the county and provincial maps, with which we will now deal.

Part II.

County and Provincial Maps.

These consist of the following 28 ms. maps on loose sheets:—

Ireland.—Map of the whole country.

Provincial maps of—

Ulster.
Leinster.
Connaught.

County maps of—

Dublin.	Londonderry.
Longford.	Tyrone.
King's County.	Down.
Queen's County.	Armagh.
Kildare.	Monaghan.
Kilkenny.	Fermanagh.
Wicklow.	Cavan.
Wexford.	Leitrim.
Limerick.	Mayo.
Waterford.	Sligo.
Kerry (incomplete).	Roscommon.
Donegal.	Galway.

The following nine maps, which make up the remainder of the series as published, are missing:—

Province of—Munster.

Counties of—

Louth.	Clare.
East Meath.	Tipperary.
West Meath.	Cork.
Carlow.	Antrim.

[1] Political Anatomy of Ireland, ch. ix, p. 59.

In the "Brief Account of the Down Survey," written by Petty in 1659, and already referred to above, it is stated that—

"Mapps of each county and province, as alsoe of the whole island, will be published in print, according to the severall ancient and moderne divisions of the same."[1]

Dr. Petty's correspondence with his cousin, John Petty, at this time Surveyor-General for Ireland, contains frequent references to this subject.[2] In March, 1660, he "bids T. T." (Thomas Taylor, then Deputy Surveyor-General) "not faint about the map," for "God may send a time when good use may be made of it." In August of the same year he causes T. T. to be informed that he has "gotten ye King's grant for a privilege and sole sale for our maps, out of which hee shall first receive satisfaction for all his pains in this business and his faithfullness to mee." In February of the following year he writes:—"We must goe in hand with graving our map. Tell T. T. that I would have a convenient size of paper pitched upon such as might contayne ye largest county, and two of ye smallest according to ye present scale, upon which account bid him send mee word how many sheetes will hold ye map now as it is? (2nd) I would have these loose sheetes capable of making four large provinciall maps, to match which (as to size) I would have a new general map done at ½ the present scale: for so shall we have five maps of neare one size to hang a room with. (3rd) I would have four provinciall maps and ye general reduced to a single sheet also, that those five small ones and ye county sheet maps may together make a booke, whereunto shall be added the description of each map. The question upon all this is what size plates will be most convenient for this designe and how many feet of plate will be requisite for the whole, of which let T. T. advise me."

In 1664, and again in 1665, Petty petitioned the King "for encouragement and assistance to finish the maps of Ireland," in the making of which he states he had been "at many hundred pounds charge and several yeares labour."[3] He appears, however, to have received little or no satisfaction from that quarter.

The county maps were, nevertheless, finished and engraved, and the work must have been completed by 1673, as is shown by the reference to "the maps of every county engraved on copper," already quoted from the "Political Anatomy of Ireland." Evelyn in his memoirs[4] states that the engraving was done at Amsterdam at a cost of £1000.

[1] History, p. xvii.
[2] Lansdowne mss.
[3] History, pp. 339, 400.
[4] Vol. ii, p. 96

The first publication of the county and provincial maps appears to have taken place in 1683, four years before Petty's death. The frontispiece bears that date, with a portrait of the author and the words "cum privilegio regis," while the title given to the work is "Hibernia Delineatio quoad hactenus licuit perfectissima studio Guilielmi Petty equitis aurati."

In his will Petty bequeaths "the copper plates for the maps of Ireland, which, with the King's privilege, I rate at £100 per annum." It is noticeable that the words "cum privilegio regis" have been eliminated in a later published edition, from which it would appear that Petty's successor gave up his copyright. This, perhaps, explains the dedication which appears in a copy of the volume in the National Library of Ireland: "To Henry, Earl and Baron of Shelburne, Viscount Dunkerron, by whose munificence the original copper plates of Sir William Petty's survey of Ireland were freely communicated for the public good." Henry Petty followed his brother Charles in 1696 in the succession to Sir William Petty's estate. He was not, however, created Earl of Shelburne until 1719, so the date of this later edition cannot have been anterior to that year.

The Lansdowne county and provincial MS. maps are precisely identical with those engraved, though, as already mentioned, nine of the published set of thirty-seven are missing. There can be little doubt that the MS. maps are the originals from which the engraved plates were taken.

The whole set of these copper plates was in the possession of Lord Lansdowne in 1875, and a series of fresh impressions were then taken from them; the plates themselves, however, were never returned by the printer, and all efforts since made to trace them have unfortunately proved unavailing.

APPENDIX I.

Lansdowne Barony Maps.

(Names, &c., as in original documents.)

County.	Barony.	Surveyors.	Scale of perches in an inch.
		Volume A.[1]	
Wicklow.	Half Rathdown. New-Castle. Talbotstown. Ballinecurr. Arkloe. Half Sheil Alle.	These Baronies, though named in the Index, are not mapped in the volume. There are a number of blank leaves in it, apparently designed for them.	
Dublin.	New-Castle and	Tho. Taylor.	160
	Upper Cross.	Allen.	80
	Half Rathdowne.	Wm. Farrand and Wm. Stock.	160
	Castle Knock.	George Baldwin and Robert Girdler.	160
	Coolock.	Wm. Wright, 1655.	160
	Ballruddery.	Tho. West, Edward Wilson, and Tho. Clerke.	160
	Nether Cross.	Thomas West and Edward Wilson.	160
E. Meath.	Moyfeanragh.	William Morgan, 1655.	160
	Dunboine.	Capt. William Morgan.	80
	Rattooth.	Wm. Morgan.	160
	Dulleeke.	Wm. Morgan.	160
	Kells.	Saml. O'Neale.	160
	Half Barony of Foore.	—	160
W. Meath.	Farbill.	Stephen Goodyear, 1655.	160
	Moycash.	John Humphry.	160
	Clunlonan.	Richard Tyler.	160
	Brawney.	George Marshall.	80
	Moygoish.	John Humphry.	160
	Delvin.	Stephen Goodyear, 1655.	160
	Corkorey.	George Marshal.	160

[1] Now missing—from a list, dated 1797, "of Barony maps of Ireland, being part of the Down Survey, contained in six folio volumes, marked A, B, C, D, E, and F, which are among the papers of the Marquis of Lansdowne in the hands of Sir Francis Hutchinson in Dublin."

APPENDIX I—*continued.*

County.	Barony.	Surveyors.	Scale of perches in an inch.
		SECTION A—*continued.*	
LONGFORD.	Ardagh.	G. Marshall.	160
	Rathlin.	John Cackeer. (Not in the Index.)	160
	Granard.	—	160
	Moydew.	G. Marshall.	160
	Longford.	John Simons, Aeneas Higgins, and John Steel.	160
		VOLUME B.	
WEXFORD.	Gory.	Wm. Hurley and Ti. Bedwell.	160
	Scarwelch.	Tho. Wm. George Hunter and John Smith.	320
	Ballaghgeene.	Wm. Hurley, Timothie Bedwell.	160
	Bantrie.	Thom. Wm. and George Hunter.	320
	Sheelmaleer.	Thom. Wm. and George Hunter, and John Smith.	320
	Forth.	—	160
	Bargy.	George Tuffon, als. Johnson.	160
	Sheelburne.	George Tuffon, als. Johnson, 1655.	160
		(16 blank pages for Co. Catherlogh).	
KILKENNY.	Gowran.	Ric. Pighils, Joshuah Hoyle, and Jonah Horrock, 1655.	—
	Fassdinine.	Wm. Brookes, John Clark, and Thomas Huish.	160
	Liberties of the Citty of Kilkenny.	Georg Marshall, 1655.	80
	Cranagh.	Thomas and Patricke Greene and Vincent Dalton, 1655.	160
	Gallmoy.	Wm. Brookes, John Clarke, and Thomas Huish.	160
	Liberties of Callan.	Mathew Dodsworth.	80
		VOLUME C.	
KILDARE.	Salt.	Edward Lucas, 1655.	160
	Naas.	John Carkase, 1655.	160
	Ikeatey and Oughterany.	Geo. Marshall, 1655.	160

APPENDIX I—*continued.*

County.	Barony.	Surveyors.	Scale of perches in an inch.
		VOLUME C—*continued.*	
KILDARE—*continued.*	Claine.	Georg Marshall, 1655.	160
	Great Connell.	Robert Girdler and Wm. Cuthburt, 1655.	160
	Carbury.	John Humfrey.	160
	Ophaly.	Wm. Wright, 1655.	200
	Norrogh and Rebane.	John Tuttle, Jon. Keating and Jon. Vise, 1655.	160
	Half Barony of Kilcullen.	Wm. Wright, 1655.	80
	Kilcah and Moone.	Wm. Wright, 1655.	160
KING'S COUNTY.	Coolestowne.	Patricke Raggett.	160
	Greatest part contiguous of the Barony of Philipstowne.	Patricke Raggett.	160
	Warrenstowne.	Patck. Raggett. (Unfinished.)	80
	Ballycowen.	Patricke Raggett.	160
	Kilcoursy.	Patricke Raggett.	160
	Balliboy.	Patricke Raggett.	160
	Clonliske.	Patricke Raggett.	160
QEEEN'S COUNTY.	Ballyadams.	Thomas Hunter.	160
	Upper Ossory.	—	320
		VOLUME D.	
WATERFORD.	Galtier.	Fra. Cooper.	160
	Midle Third.	Fra. Cooper.	160
	Upper Third.	Francis Cooper.	320
	Glaneyhyry.	Francis Cooper.	160
TIPPERARY.	Slevardagh and Compsy.	Thomas Greene, Patricke Greene, and Vincent Dalton.	320
	Kilnemanagh.	P. Ragget.	160
	Kilnelongurty.	Pat. Raggett.	160
	Upper Ormond.	Patr. Raggett.	160
	Lower Ormond.	Patrick Raggett.	160
	Owny and Arra.	—	160

APPENDIX I—*continued.*

County.	Barony.	Surveyors.	Scale of perches in an inch.
		VOLUME D—*continued.*	
LIMERICK.	Ownthneybegge.	Pat. Raggett.	160
	Liberty of the Citty of Limericke.	—	160
	North Libes of Lymricke.	John Mason, 1657 (certified as a true copy from the Surveyor-General's Office).	40
	Clanwilliam.	Thomas Jackson, 1656.	160
	Smal County.	Tho. Jackson, 1656.	160
	Coshma (and town of Athdare).	Tho. Jackson, 1656.	160
	Liberties of Kilmallocke.	Tho. Jackson.	40
	Coshlea.	Tho. Jackson, 1656.	1 mile.
		VOLUME E.	
ARMAGH.	Fews.	Simon Garstyne.	160
	Oryer.	Simon Garstyne.	160
DOWN.	Lower Evagh.	Edward Lucas.	160
	Kinealerty.	Edward Lucas.	160
TYRONE.	Omy.	Edward Wilson.	1 mile.
	Strabane.	Æn. Higgin and Jon. Young, 1656.	1 mile.
	Dungannon.	Jon. Young and Tho. West.	320
DUNNAGALL.	Tyrehugh.	—	320
	Boylagh and Bannagh.	Æneas Higgins.	320
	Killmacrenan.	Thomas Betts, Thomas West.	320
	Raphoe.	Thomas West.	320
	Enishowen.	Æneas Higgin.	320
LONDONDERRY.	Tyrekerin.	Tho. West and Ed. Wilson.	320
	Kenoght.	Tho. West and Ed. Wilson.	320
	Colerain.	Ed. Wilson and Tho. West.	320
	Liberties of Coleraine.	John Young, 1656.	160
	Loghinsholin.	Ed. Wilson, 1656.	320

APPENDIX I—*continued.*

County.	Barony.	Surveyors.	Scale of perches in an inch.
		VOLUME E—*continued.*	
ANTRIM.	Toome.	Stephen Goodyear.	1 mile.
	Antrim.	Stephen Goodyeer.	320
	Kilconway.	John Carkas.	160
	Glennarne.	John Carkas.	160
	Cary.	Jon. Carkas.	160
		VOLUME F.	
KILKENNY.	Knocktopher.	Wm. Wright, 1657.	160
	Kells.	John Courtny, 1658.	160
	Sheellogher.	Lt. Draper, 1657.	—
	Ida, Igrin, and Ibercon.	John Buckley, 1657.	160
	Iverke.	Randolph Maning.	160
MONAGHAN.	Cremorne.	Laurenc and Rob. Jackson, 1657.	160
	Trough.	(Denominations &c., given in the Index, but no map.)	
	Dartry.	(In the Index, but no map.)	
	Monaghan.	(In the Index, but no map.)	
CAVAN.	Castleraghen.	Pat. Allen, 1657–8.	160
	Tullaghgarvy.	Wm. Farrand, 1657.	160
	Clonmoghan.	Giles Gilbert, 1657.	160
	Clonchy.	(In the Index, but no map.)	
	Tullaghagh.	(Map loose.)	160
	Loghtee.	John Humfrey, 1659 (not in Index and map loose).	320
FERMANAGH.	Magheriboy.	Tho. West, 1657.	160
	Magherestephana.	Tho. West, 1657.	160
	Clanawly.	Tho. West, 1657.	160
CORK.	Kinnalear and Kerricurriky.	(In the Index, but no map.)	
	Armoy, als Farmoy.	—	320
	Condons and Clangibbon.	—.	320
	Carbury.	(Not in the Index and the map loose.)	—
	Duhallo.	Hen. Osborne.	320
	Orrery and Kilmore.	Ge. Marshall, 1657.	320

Appendix I—*continued.*

County.	Barony.	Surveyors.	Scale of perches in an inch.
		Volume F - *continued.*	
Down.	Upper Eveagh.	Geo. Marshall, 1657.	320
	Lecale.	—	320
	Ards.	Geo. Marshall, 1658.	320
Ardmagh.	Towarany.	(In the Index, but no map).	
	O'Nealland.	G. Marshall, 1657.	320
	Ardmagh.	G. Marshall, 1657.	160
Antrim.	Dunluce.	G. Marshall, 1658.	160
	County Palatine of Carickfergus.	—	160
	Massareene.	—	1 mile
	Toome.	(Map in vol. E.)	
	Antrim.	(Map in vol. E.)	
Mayo.	Tyrawly.	(In the Index ; but no map.)	
Longford.	Abbyshrewl.	John Carkas.	160
Kerry.	Dunkerron.	(Two loose maps.)	320
	Iveragh.	(Map loose.)	320

APPENDIX II.

Finished Barony Maps of the Down Survey, formerly in the custody of the Auditor-General, and now in the Public Record Office, Dublin. (22 Maps.)

Antrim.

Belfast.

Carlow.

Catherlogh.
Forth.
Part of St. Mullin.
Idronie.
Ravillie.
Part of St. Mullin.

Leitrim.

Carrigallin.
Dromahere.
Letrim.
Moyhill.
Rosclougher.

APPENDIX II—*continued.*

SLIGO.

Carbury.
Corran.
Leyny.
Tirraril.
Tyreragh.

WICKLOW.

Arklow.
Ballinecur.
Newcastle.
Half Rathdowne.
Talbotstown.

APPENDIX III.

Finished Barony Maps of the Down Survey, formerly (1819) in the Quit Rent Office.

(*a*) Now in the Public Record Office, Dublin. (17 Maps.)

KING'S COUNTY.

Ballybritt.
Eglish.
Garricastle.

LOUTH.

Atherdee.
Ferrard.
Louth.

MEATH.

Lune.
Morgallion.
Navan.
Skreene.
Slane.

QUEEN'S COUNTY.

Maryborough.
Portnehinch.
Sleivmargagh.
Stradbally.

WATERFORD.

Coshmore and Coshbride.
Decies.

Appendix III—*continued.*

(*b*) Still remaining in the Quit Rent Office. (14 Maps.)

Louth.

Dundalk.

West Meath.

Fartullagh.
Fore (Half Barony).
Moyash and Maheredernon.
Rathconrath.

Limerick.

Coonagh.
Kenry.
Poblebrian.

Tipperary.

Clanwilliam.
Iffa and Offa.
Ileagh.
Middlethird.
Ikerin.

Cavan.

Loghtee. (Duplicate in the Lansdowne collection.)

Queen's County.

Cullinagh. (No title-points or scale.)

APPENDIX IV.

List of Down Survey Barony Maps in the Bibliothèque Nationale at Paris, showing where the originals from which these were copied are at present to be found :—

L. = Lansdowne collection.
L.* = „ missing volume A.
P. R. = Public Record Office, Dublin.
Q. R. = Quit Rent Office, Dublin.

PART I.

LEINSTER.

Louth :	Originals in	Dublin :	Originals in
3 Dundalk	P.R.	8 Balrudery,	L.*
4 Louth	P.R.	9 Nethercross	L.*
5 Atherdee	P.R.	10 Castleknock	L.*
6 Ferrard	P.R.	11 Coolock	L.*
		12 Newcastle	L.*
		13 Halfe Rathdowne	L.
		14 Upper Cross	L.*

APPENDIX IV—*continued.*

	Originals in
EAST MEATH:	
16 Slane	P.R.
17 Morgallon	P.R.
18 Kells	L.*
19 Halfe Foor	L.*
20 Lune	P.R.
21 Navan	P.R.
22 Duleeke	L.*
23 Skreene	P.R
24 Ratoath	L*
25 Dunboyne	L.*
26 Deece	—
27 Moyfenragh	L.*
WEST MEATH:	
29 Halfe Foor	Q.R.
30 Moygoish	L.*
31 Corkerry	L.*
32 Delvin	L.*
33 Moyashell, als. Maghe-rederno	Q.R.
34 Farbill,	L.*
35 Furtullagh	Q.R.
36 Moycashell	L.*
37 Ratheonrath	Q.R.
38 Kilkenny West	—
39 Brawney	L.*
40 Clonlonan	L.*
LONGFORD:	
42 Longford	L.*
43 Granard	L.*
44 Ardagh	L.*
45 Moydew	L.*
46 Rathlin	L.*
47 Abbyshrewle	L.* Vol. F.
KING'S COUNTY:	
49 Garricastle	P.R.
50 Eglish, als. Fercale	P.R.
51 Balliboy	L. Vol. C.
52 Ballycowen	L. Vol. C.
53 Killcoursey	L. Vol. C.
54 Geshill	—

	Originals in
KING'S COUNTY—*continued.*	
55 Phillipstowne	L. Vol. C.
56 Warrenstowne	L. Vol. C.
57 Coolestowne	L. Vol. C.
58 Ballybritt	P.R.
59 Clonlisk	L. Vol. C.
QUEEN'S COUNTY:	
61 Portnehinch	P.R.
62 Tenehinch	—
63 Upper Ossery	L. Vol. C.
64 Maryborough	P.R.
65 Stradbally	P.R.
66 Balliaddams	L. Vol. C.
67 Cullinagh	Q.R.O. (without Title, &c.)
68 Slewmargie	P.R.
KILDARE:	
70 Carbury	L. Vol. C.
71 Ikeathy & Oughtereny	L. Vol. C.
72 Salt	L. Vol. C.
73 Nass	L. Vol. C.
74 Claine	L. Vol. C.
75 Great Connell	L. Vol. C.
76 Ophaly	L. Vol. C.
77 Norragh and Rabane	L. Vol. C.
78 Halfe Killeullin	L. Vol. C.
79 Killcash and Moone	L. Vol. C.
WICKLOW:	
81 Halfe Rathdowne	P.R.
82 Talbotstowne	P.R.
83 Ballinecurr	P.R.
84 Newcastle	P.R.
85 Arklow	P.R.
CATHERLOGH:	
87 Ravilly	P.R.
88 Catherlogh	P.R.
89 Forth	P.R.
90 Idronie	P.R.
91 Part of St. Mullin	P.R.

APPENDIX IV—*continued.*

KILKENNY:	Originals in
93 Fassadining	L. Vol. B.
94 Gallmoy	L. Vol. B.
95 Crannagh	L. Vol. B.
96 Kilkenney Liberties	L. Vol. B.
97 Gowran	L. Vol. B.
98 Sheelogher	L. Vol. F.
99 Callen Liberties	L. Vol. B.
100 Kells	L. Vol. F.
101 Knocktopher	L. Vol. F.
102 Iverke	L. Vol. F.
103 Ida, Igrin, & Ibercon	L. Vol. F.

WEXFORD:	Originals in
105 Gory	L. Vol. B.
106 Scarwelch	L. Vol. B.
107 Ballagheene	L. Vol. B.
108 Bantry	L. Vol. B.
109 Sheelmaleer	L. Vol. B.
110 Sheelburne	L. Vol. B.
111 Bargie	L. Vol. B.
112 Forth	L. Vol. B.

CONNAUGHT.

LEITRIM:	
115 Rosclogher	P.R.
116 Duumaheir	P.R.
117 Letrim	P.R.
118 Carrigallon	P.R.
119 Moyhill	P.R.

SLEGO:	
121 Carbury	P.R.
122 Tirrerill	P.R.
123 Corran	P.R.
124 Coolavin	—
125 Tirreragh	P.R.
126 Leyny	—

MAYO:	
128 Tirrawly	(Indexed in L. Vol. F., but no map.)

PART II.

ULSTER.

DUNNAGALL:	
3 Enishowen	L. Vol. E.
4 Kilmacreenan	L. Vol. E.
5 Rapho	L. Vol. E.
6 Boylagh and Bannagh	L. Vol. E.
7 Tirehugh	L. Vol. E.

LONDONDERRY:	
9 Coleraine Liberties	L. Vol. E.
10 Coleraine	L. Vol. E.
11 Kenoght	L. Vol. E.
12 Tyrkerin	L. Vol. E.
13 Loghinsholin	L. Vol. E.

ANTRIM:	
15 Carie	L. Vol. E.
16 Dunluce	L. Vol. F.
17 Killconway	L. Vol. E.
18 Glenarme	L. Vol. E.
19 Antrim	L. Vol. E.
20 Toome	L. Vol. E.
21 Bellfast	P.R.
22 Massareene	L. Vol. F.
23 County Palatine of Carrickfergus	L. Vol. F.

APPENDIX IV—*continued.*

	Originals in
TYRONE:	
25 Strabane	L. Vol. E.
26 Omagh	L. Vol. E.
27 Dungannon	L. Vol. E.
DOWNE:	
29 Ards	L. Vol. F.
30 Lecale	L. Vol. F.
31 Kinalearty	L. Vol. E.
32 Lower Evagh	L. Vol. E.
33 Upper Evagh	L. Vol. F.
MONAGHON:	
35 Trough	(Indexed in L. Vol. F., but no map.)
36 Monaghon	do.
37 Dartry	do.
38 Cremorne	L. Vol. F.
ARDMAGH:	
40 Onelan	L. Vol. F.
41 Ardmagh	L. Vol. F.
ARDMAGH—*continued.*	
42 Towrane	(Indexed in L. Vol. F., but no map.)
43 Fewes	L. Vol. E.
44 Orrior	L. Vol. E.
FERMANAGH:	
46 Maghereboy	L. Vol. F.
47 Magherestephana	L. Vol. F.
48 Clanawly	L. Vol. F.
CAVAN:	
50 Tullaghagh	(L. Vol. F. (map loose).
51 Tullaghonoho	—
52 Loghtee	L. Vol. F. (map loose), and Q.R.
53 Tullaghgarvy	L. Vol. F.
54 Clonehy	(Indexed in L. Vol. F., but no map.)
55 Castleraghan	L. Vol. F.
56 Clonmoghon	L. Vol. F.

MUNSTER.

CLARE:	
59 Corcumroe	—
60 Bunratty	—
61 Moyfertagh	—
LIMERICK:	
63 North Liberties	L. Vol. D.
64 South Liberties	L. Vol. D.
65 Clanwilliam	L. Vol. D.
66 Abby Oughthenybeg	L. Vol. D.
67 Counagh	Q.R.O.
68 Small County	L. Vol. D.
69 Poblebryan	Q.R.O.
70 Kenry	Q.R.O.
71 Connello	—
72 Coshma	L. Vol. D.
73 Killmallock Liberties	L. Vol. D.
74 Coshlea	L. Vol. D.
TIPPERARY:	
76 Lower Ormond	L. Vol. D.
77 Upper Ormond	L. Vol. D.
78 Owny and Arra	L. Vol. D.
79 Killnelongurty Territory	L. Vol. D.
80 Illeagh Territory	Q.R.O.
81 Ikerin Halfe Barony	Q.R.O.
82 Halfe Elleogurty	—
83 Slevardagh & Compsy	L. Vol. D.
84 Midlethird	Q.R.O.
85 Killnemanagh	L. Vol. D.
86 Clanwillian	Q.R.O.
87 Iffa and Offa	Q.R.O.

APPENDIX IV—*continued.*

WATERFORD:	Originals in
89 Gualtier	L. Vol. D.
90 Waterford Liberties	Q.R.O.
91 Midle Third	L. Vol. D.
92 Upper Third	L. Vol. D.
93 Glanehery	L. Vol. D.
94 Deecies	P.R.
95 Coshmore and Coshbride	P.R.
CORK:	
97 Duhallo	L. Vol. F.
98 Orrery and Killmore	L. Vol. F.
99 Armoy, als. Fermoy	L. Vol. F.
100 Condons and Clangibbon	L. Vol. F.
101 Killnatallone	—
102 Imokilly	—
103 Barrimore	—
104 Corke Liberties	—
105 Barrets	—
106 Kerrycurrihy and Kinalea	(Indexed in L. Vol. F., but no map.)

CORK—*continued.*	Originals in
107 Muskerry	—
108 Kinealmeaky	—
109 Kinsale Liberties	—
110 Coursey	—
111 Carbury and Ibaune	L. Vol. F. (loose).
112 Beare and Bantry	—
113 Barriro	—
KERRY:	
115 Iragticonner	—
116 Clanmorris	—
117 Corkaguinny	—
118 Trughanackny	—
119 Mogunnihy	—
120 Glaneroughty	—
121 Dunkerone	L. Vol. F. (2 maps loose).
122 Iveragh	L. Vol. F. (loose).

SUMMARY.

Complete set of Barony Maps in the Bibliothèque Nationale, Paris (see Appendix IV),			216
Originals in Lansdowne Vol. A (now missing) (Appendix I),	25	128	
Originals in Lansdowne Vols. B, C, D, E, F (Appendix I),	103		
Originals in Public Record Office, Ireland (Apps. II and III),	39	53	216
Originals in Quit Rent Office, Ireland (Appendix III),	14		
Originals no longer extant:—			
Missing vol. of Cos. Kerry and Cork, say	20	35	
Unaccounted for,	15		

October, 1919

A 1

PROCEEDINGS

OF THE

ROYAL IRISH ACADEMY

VOLUME XXXV, SECTION A, NO. 1

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OF THE

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,, XVI. (1879-1888) ,,	,, II. ,, ,,
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,, XX. (1896-1898) ,,	,, IV. ,, ,,
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,, XXII. (1900-1902) ,,	,, VI. ,, ,,
,, XXIII. (1901) ,,	,, VII. ,, ,,
,, XXIV. (1902-1904):—	
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,, C. Archæology, Linguistic, and Literature.	
XXV. (1904-5)	
,, XXVI. (1906-7)	
,, XXVII. (1908-9)	In three Sections like Vol. XXIV.
,, XXVIII. (1909-10)	
XXIX. (1910-11)	
XXX. (1912-13)	
XXXI. (Clare Island Survey, 1911-15.)	
,, XXXII. (1913-15)	
,, XXXIII. (1916-17)	In three Sections as above.
,, XXXIV. (1918-19)	
XXXV. (Current Volume).	

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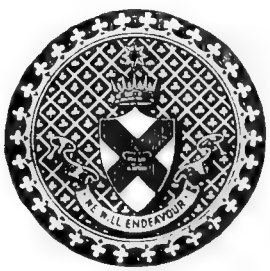

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