THE

Journal of the Agricultural Society

OF NEW SOUTH WALES.

[No. I.] SYDNEY, AUGUST 15, 1868. {Sent FREE to all Members of the Agricultural Society.

INDEX.

To Correspondents.

W. TRAPPITT, Esq., *Orange*.—Your letter on the "Helianthus" will appear in next issue.

J. H. ATKINSON, *Liverpool*.—Letter received; will be glad to hear from you on "Wool," &c.

H. ROTTON, *Bathurst*.—The subject of your letter has received due consideration—more anon.

SECRETARY Richmond River Agricultural Society.—We shall be glad to communicate with you on all matters connected with agriculture.

REV. G. CHARTER, *Wollongong*.—The cause of your syrup failing to granulate may be attributed to over-boiling, or perhaps to exposure to damp air. If you forward a sample we shall ascertain whether the saline qualities of your soil have been the cause of your failure.

DAVID CRICHTON, *Glebe*.—Your request will be laid before the Council at next Meeting.

WALTER HILL, *Brisbane*.—Your letter received with [thanks; shall be glad if you will afford us matter for publication.

LETTERS, PAPERS, &c., for publication, must be addressed to the Editor, 237 George-street, before the 25th of the month.

ADVERTISEMENTS must be paid in advance, and be sent in on or before the 10th.

The Journal of the Agricultural Society.

AUGUST 15, 1868.

MEETINGS FOR THE ENSUING MONTH.

EXHIBITION COMMITTEE	—Friday, August 21	... ...	11 a.m.
SCIENTIFIC COMMITTEE	—Wednesday, August 26	... ...	3 p.m.
FINANCE COMMITTEE	— ,, September 2	half-past	10 a.m.
COUNCIL (Monthly)	— ,, ,, 2	... ...	11 a.m.

CONCERNING THIS JOURNAL.

THE art of the printer has proved an invaluable assistant to the whole body of the arts and sciences. It has stood to them in the relation Aaron stood to Moses—being their mouthpiece. Literature is the mouthpiece of Learning. In the absence of such a coadjutor, that progress in art and science which is the object of so much astonishment and admiration, would have been impossible. This statement admits of no exception; it is as true of the art of husbandry as of any other arts, and the history of agriculture in Europe and America affords abundant testimony that such is the case. Had not the printing press been at hand to chronicle and preserve the results of experiment, those who, in Europe, draw their subsistence from the land would still be where they were two centuries ago in respect of knowledge, and these colonies would never have been peopled by Britain.

The Agricultural Society of New South Wales feel that they cannot afford to dispense with the service of such an ally. The newspaper which has served it hitherto does not offer all the facilities that are now wanted. While it continued to occupy a local position and to exert a local influence merely, little more was needed probably than the daily and weekly prints were capable of giving; but now that, owing to the extension of the railways, the linking together of town and city for the purposes of profitable communication, and the expression of a growing desire on the part of those who derive their living from the land for a closer intercourse, and the Society advances to occupy the position indicated by its name, something more is required. An association which proposes to exist for all must of necessity have a very scattered constituency. Its members will be found in every part of the colony, and therefore as a general rule far too much separated to meet frequently. In order, consequently, to sustain the associative spirit which is the marrow and life of such a society, it is considered essential to bind these scattered individuals together by means of a JOURNAL, published monthly, devoted to the transactions of this Society, and the local associations of this colony, as well as the instruction of all concerned.

A variety of reasons have weighed with the Council of the Society, and determined them to take this step; and that which had probably most influence was drawn from the consideration of the exceptional character of those, who, for the most part, are occupying the land of this colony, and indeed from the novel circumstances in which the entire community find themselves. Those who have been accustomed to grazing and farming in England or Ireland or Scotland, have much to unlearn before they can succeed here, and those who have no previous experience of good husbandry—and these form by far the greater portion of landholders—have everything to learn. We are in want of an Australian Agricultural Literature, of records that can be readily referred to and conveniently studied, and it is to supply this desideratum that the Society attempts.

There is apt to be much too large a space between the whole body of the people, and those who have gone farthest in the field of scientific research and enquiry. Important principles are apt to be discovered and forgotten, re-discovered and again lost. Useful improvements in all the industrial

arts have frequently been made and pressed upon the notice and acceptance of the people, who, wedded to old methods and old prejudices, refused to be benefited thereby, and suffered the inventors to go unrewarded, and their discoveries to pass out of the memory of man. Nature daily re-possesses itself of important discoveries, made in the laboratory, in the shop, and in the closet, and the world takes no note of the loss. Much may be done to fill up this space which divides the great masses from the intellectual leaders, by giving immediate currency to the inventions and discoveries of science, so that they may at once become the property of the race and nothing be lost. Such is the service the Society hopes to be enabled to do by means of this publication.

Nor was the Council uninfluenced in the establishment of this JOURNAL by the consideration that it would be the means of increasing the funds of the Society. It could scarcely be expected to do this at first, but to prove a heavy burden upon those funds, which are at present slender. The step would not have been justified yet had not circumstances favored the venture, and converted what might have been a burden into a scource of profit. But irrespective of this circumstance, it was deemed that such a publication would prove a great attraction, that if well conducted it would come to be regarded the best privilege of membership, and would indirectly strengthen the hands of the Society.

A glance at the objects entertained by the Society, which are to be found in the present issue, will convey an impression to the reader not only of the desirability of a journal, but of its scope and probable value to members. One of these objects is to hold annual shows of live stock, vegetable produce, and agricultural machinery. In the getting up of these exhibitions a journal of this description will prove an invaluable assistant. It will not only economise the operations of the Society, but impart to them a superior efficiency; and when they are over it will contain an accurate record of their occurrence that may be referred to for purposes of comparison. The Society exists for the purpose of encouraging scientific inquiry, and familiarising the occupyer of the land with the nature and action of all the elements, organic and inorganic, with which he has to deal. There is a Committee specially appointed to direct its attention to such subjects. Their operations will furnish abundance of highly instructive and suggestive matter, and their offer to respond to the inquiring members applying for information touching any points connected with pastoral and tillage affairs, will probably necessitate the reservation of a portion of the JOURNAL for such portions of the correspondence as may be of special utility. Its pages will often be occupied with the reports of experiments undertaken under the directions of the Society, as well as with properly authenticated reports of experiments made by private individuals.

Another design entertained by the Society is to employ committees or individuals to report, from time to time, on the state and progress of station property, farms, or districts of the colony, or to investigate into and report upon any circumstance, such as the sudden appearance of disease, that seem to require serious treatment. Reports resulting from such inquiries will of course appear in the JOURNAL. So also will original articles suggested by the JOURNAL COMMITTEE, and written by persons thoroughly conversant with the subjects treated. Space likewise will be found for valuable papers from other sources, and, as the Society's JOURNAL will secure an exchange with the chief societies of Europe, America, and the British Colonies, the editor will find these sources pretty numerous, and the members will find plenty of reading when they visit the Society's rooms. Besides these materials will be found a calendar of operations, a monthly meteorological return, and various particulars concerning markets, trade and wages, that may be wanted for reference.

Although absolutely confined to members, the JOURNAL will form a convenient medium for advertisement, and, together with the advertisements of the general public, will be found the Society's notices of meeting and other matters that would generally go into the advertising columns of the daily press.

The JOURNAL and SCIENTIFIC COMMITTEE are responsible for the conduct of this publication; they will exercise a general supervision over the papers admitted, and one of their number will gratituously fulfil the duties of editor. It will appear on the 15th of every month, and consist of *sixteen pages*.

We cannot conclude these remarks without reminding the land holders of New South Wales of the work that lies before them. They are in possession of a splendid territory, a territory rich in natural resources; it is their duty to make the most of it. Its pasturages may be covered with flocks and herds, its hills may be terraced with vines, its fertile plains may abound wtih waving crops of corn, its lowlands flow with milk and honey; all that can minister to the comfort of a people, to the gigantic growth of a nation may be had—but only under certain conditions. These conditions may be summed up in one. Nature only bestows her gifts on those who observe her rules in applying for them. The fable concerning JASON and the Golden Fleece, contains a memorable moral. The object of his search would never have been his unless he had first made himself acquainted with the conditions of search, and then complied with them. Assiduity and obedience won him a kingdom. Trades and manufactures are pretty much the same here as they are in Europe. Those who have been conversant with them at home can at once apply their knowledge when they arrive in Australia, without any rearrangement of ideas. It is not so in Pastoral and Tillage operations. Nature has a different way of going to work. Her

materials in Australia are the same as they are in Europe or America, but they combine for the production of remunerative results under different laws. Many a man presuming on an intimacy with her modes and habits in other countries, has failed here. He has retreated, baffled and disappointed. Fortunes have been wasted, energies have been squandered by inappropriate attempts to unlock the resources of this land. It is not superhuman strength that is needed, but knowledge—knowledge acquired by patient and intelligent observation. It is not the strength of the priser, but the skill of the pick-lock that will soonest disclose the treasures of the welded iron safe. Neither Governments nor societies can prove of any avail, if those who occupy the land of this colony themselves fail to interrogate Nature as to her mode of operation in this country, if they obtain not from her the secret of working amid the obstacles of drought and flood, of scorching suns and drenching rains. The only safe dependence is in *individual* experiment, combined with a patient and intelligent observation of effects and causes. Von Thaer, a German writer of repute upon the Principles of agriculture, speaks well on this subject. He says:—

"These experiments, it is true, are not easy; still they are in the power of every thinking husbandman. He who accomplishes but one, of however limited application, and takes care to report it faithfully, advances the science, and consequently the practice of agriculture, and acquires thereby a right to the gratitude of his fellows, and those who come after."

The province of the Society will be to direct the course of such experiments, and to provide for the record, the preservation, and the circulation of the results by means of this Journal.

OBJECTS AND RULES OF THE AGRICULTURAL SOCIETY OF NEW SOUTH WALES.

OBJECTS.

The Agricultural Society of New South Wales, as now reconstituted, is an association of persons desirous of disseminating such information amongst those who derive their subsistence directly from the land, as may enable them to obtain the highest results from the application of skill, energy, and capital to *Pastoral* and *Farming* pursuits. Their object is to promote good Husbandry, including improvement in the breeding and treatment of live stock, by the enlightened combination of *Practice with Science*. It is their desire to assume a friendly and parental relation towards the kindred societies of the Colony, to increase their number, and to use their best endeavours to unite and strengthen these local bodies for harmonious and progressive action.

In order to effect this purpose the Society proposes to itself the employment of the following means:—

To occupy central offices in Sydney suited to accommodate the assembly of Members for General Meetings and Lectures, and adapted to receive a Library and gradually increasing Collection of Specimens, Models, Drawings, and other objects of interest.

To establish relations with all the Colonial Societies, with those of the sister colonies, and to enter into correspondence with the Societies of Europe and America for the purpose of exchanging published transactions, &c.

To institute meetings for the discussion of subjects of importance.

To furnish information to any Member applying for it on all points connected with Tillage or Pastoral operations.

To make arrangements to furnish on a moderate scale of charges, Chemical Analysis of soils, plants, water, Microscopical Analysis, or investigations into plants or their diseases, together with gratuitous information through its members, or qualified persons, concerning the Geological Distribution and character of Soils, the secrets of insect life, or Atmospheric Phenomena.

To publish for distribution amongst the members such of the Society's transactions as may be judged of sufficient value.

To undertake the employment of Committees or individuals, to report from time to time on the state and progress of various stations, farms, or districts of the Colony, or to investigate into and report upon any circumstances, such as the sudden appearance of disease, that may seem to require serious treatment.

To offer Premiums for Growing Crops, and highly cultivated Farms, and Live Stock of the usual descriptions possessing an economical value, or other objects likely to encourage skill and enterprise in certain desirable directions.

To undertake Experiments in the growth of different kinds of plants, the value of various kinds of manure, the feeding value of certain substances, so that as much as possible the energy of the colonists may be directed to remunerative objects.

To award Prizes for the attainment of proficiency by the youth of the Colony in certain specified subjects, to be ascertained by examination.

To hold Annual shows in Sydney or other principal towns for the display of Live Stock, Vegetable Produce, Agricultural Machinery, together with any other objects that may be thought desirable.

To establish Matches for the encouragement of skilled farm labour as well as to take all available opportunities of shewing new machinery in operation, and new modes of work.

RULES.

1. The Agricultural Society of New South Wales shall consist of a President, six Vice-Presidents, Governors, and Members.

2. The Council, which is elected from the Governors and Members, shall consist of the

President, Vice-Presidents, and fifty Members; twenty-five of whom go out annually by rotation, but are eligible for re-election.

3. The President and Vice-Presidents are to be elected annually from the Governors.

4. The Governors shall pay *three* guineas annually. the Members *one* guinea, with the power to compound for life, by the payment in one sum of *twenty* guineas for Governors, and *twelve* guineas for Members.

5. The Council shall have the power to appoint Committees and Sub-Committees of any members of the Society; of all which Committees, the President, and Vice-Presidents shall be members *ex-officio*.

6. At the Annual General Meeting of the Society, the election of Officers shall take place by ballot.

7. It shall be the duty of the Council to elect all paid Officers, to define their duties, and to fix their salaries.

8. The Annual Exhibition shall be held every year at Sydney in the month of *March;* the Ploughing matches and Implement trials at Parramatta at the same time; and the Annual General Meeting shall be held at the Society's Offices in the month of *April* following.

9. All subscriptions shall be paid in advance, and date from the first day of July. No Member shall enjoy the privileges of the Society, or attend its meetings, whose Subscription shall be in arrear.

10. The Council shall meet the first Wednesday in every month at 11 a.m. for the discharge of business, five to form a quorum, but no grant of money shall be made at any such meeting, nor shall any business of importance be considered as fully decided upon, until confirmed at a subsequent Monthly Meeting.

11. The minutes of all meetings, shall be entered by the Secretary in a book to be kept for that purpose, and signed by the Chairman, and such minutes shall be considered the authenticated orders and proceedings of the Society.

12. All drafts for money shall be signed by the Treasurer of the Society, and countersigned by the President or a Vice-President, but only on the recommendation of the Committee of Finance.

13. The Treasurer's balance sheet duly audited, shall be produced at the Annual General Meeting of the Society.

13. On the receipt of a requisition signed by ten duly qualified Members of the Society, and presented to the Chairman of the Council, stating the object for which the Meeting is required; the Secretary shall be instructed to call by advertisement or circular, a Special General Meeting of the Society, in which the business for which the Meeting is called shall be named, and at which that business shall be discussed and no other.

15. It is a fundamental rule of the Society, that no question shall be discussed at any of its meetings, of a political tendency.

16. No rule or bye-law shall be altered unless due notice of such change shall be given at a Meeting of the Council, and carried at the two subsequent monthly Meetings.

PRIVILEGES OF MEMBERSHIP.

1. The use of the Society's rooms and library.
2. Free attendance at the Societies meetings.
3. Copies of all the Society's publications.
4. Free ticket to the Exhibition, which will admit the bearer to the Society's ground previous to the admission of the public.
5. Chemical and microscopical analysis at low rates of payment, as below:

SCALE OF CHARGES FOR ANALYSES.

The Council have fixed the following rates of charge for analyses to be made by the consulting chemist for the *bona fide* use of members of the Society; who (to avoid all unnecessary correspondence) are particularly requested, when applying to him, to mention the kind of analysis they require, and to quote its number in the subjoined schedule. The charge for analysis, together with the carriage of the specimens, must be paid to him by members at the time of their application.

	£	s.
No. 1.—An opinion of the genuineness of Peruvian guano, bone-dust, or oil-cake (each sample)	0	10
„ 2.—An analysis of guano; showing the proportion of moisture, organic matter, sand, phosphate of lime, alkaline salts, and ammonia	1	0
„ 3.—An estimate of the value (relatively to the average of samples in the market) of sulphate and muriate of ammonia, and of the nitrates of patash and soda ..	0	10
„ 4.—An analysis of superphosphate of lime for soluble phosphates only..	0	10
„ 5.—An analysis of superphosphate of lime, showing the proportions of moisture, organic matter, sand, soluble and insoluble phosphates, sulphate of lime, and ammonia	1	10
„ 6.—An analysis (sufficient for the determination of its agricultural value) of any ordinary artificial manure	1	10
„ 7.—Limestone:—the proportion of lime, 7*s* 6*d*., the proportion of magnesia, 10*s*.; the proportion of lime and magnesia ..	0	15
„ 8.—Limestone or marls, including carbonate, phosphate, and sulphate of lime, and magnesia with sand and clay	2	0
„ 9.—Partial analysis of a soil, including determinations of clay, sand, organic matter, and carbonate of lime.. ..	1	0
„ 10.—Complete analysis of a soil..	3	0
„ 11.—An analysis of oil-cake, or other substance used for feeding purposes; showing the proportion of moisture, oil, mineral matter, albuminous matter, and woody fibre; as well as of starch, gum, and sugar, in the aggregate	1	0
„ 12.—Analysis of any vegetable product ..	1	0
„ 13.—Analysis of animal products, refuse substances used for manure, &c. from 10*s*. to	2	0
„ 14.—Determination of the "hardness" of a sample of water before and after boiling	0	10

No. 15.—Analysis of water of land drainage, and of water used for irrigation	2	0
„ 16.—Determination of nitric acid in a sample of water	1	0
„ 17.—Determination of the quantity of alcohol in wine	1	0
„ 18.—Ditto in liquor	1	0
„ 19.—Microscopical examination, according to agreement.		

SUBSCRIPTIONS TO SOCIETY

Will date from July 1st, 1868, and are required to be paid in advance. When paid at the office a receipt will be given in the form of a ticket, which will give free admission to the Society's show grounds, and the possession of which will secure the regular postage of this Journal.

NOTICE.—The Secretary will be glad to receive Schedules of Prizes, and Regulations for Shows, from the local Societies.

Also, for the consideration of the Council, offers of Special prizes for the Exhibition in March.

Agricultural Society of New South Wales.

1868-1869.

PRESIDENT:

SIR WILLIAM MACARTHUR.

VICE-PRESIDENTS:

HON. JOHN HAY	R. L. JENKINS
THOMAS S MORT	SLOPER COX
W. J. DANGAR	N. P. BAYLY

COUNCIL.

W. Ainsworth	W. Keene
A. Adams	P. G. King
Hon. W. Busby	J. de V. Lamb
F. A. Bell	C. W. Lloyd
Henry Beit	Wm. Macleay
S. C. Burt	Charles Moore
H. Badgery	Henry Mort
J. B. Bettington	J. McCarthy
Thomas Barker	J. Nowlan
I. K. Cleeve	J. Oxley
R. W. Cox	G. M. Pitt
J. L. Castner	James Pye
E. Dawson	Howard Reed
J. F. Downes	J. Russell
James Devlin, Junior	R. H. Roberts
A. Dight	E. F. Roberts
W. Fullagar	W. Suttor
J. Good	R. B. Simpson
W. H. Gibbons	Dr. Thompson
H. Harvey	E. Terry
Thomas Holt	A. Town
Hon. Thomas Icely	Buchan Thomson
W. R. Jenkins	W. Ward
G. R. Johnstone	Thomas Walker
J. H. Keys	Charles Watt

COMMITTEES:

Finance.

C. W. Lloyd	James Devlin, Jun.
Edward Terry	Thomas Dawson

Howard Reed.

Auditors.

Rd. Holdsworth | A. Bruce

F. Lassetter.

Exhibition.

Howard Reed	I. K. Cleeve
J. Wyndham	Hon. J. H. Cox
James Pye	William Bradley

Thomas Dawson.

Scientific.

Professor Smith	A. B. Wiegall
Dr. Thompson	Charles Moore
Frederick Adams	Howard Reed
Charles Watt	E. T. Ramsay

HON. SECRETARY AND TREASURER:
John Lackey.

SECRETARY:
Jules Joubert.

OFFICES AND COMMITTEE ROOMS—227 GEORGE STREET.

AGRICULTURAL SOCIETY OF NEW SOUTH WALES.

MONTHLY MEETING OF THE COUNCIL.

WEDNESDAY, AUGUST 5TH.

MEMBERS present—A. Dight, Esq., in the chair, A. Bruce, Esq., H. Beit, Esq., H. Badgery, Esq., Hon. W. Busby, J. Castner, Esq., J. F. Downs, Esq., J. Joubert, Esq., C. W. Lloydd, Esq., S. Lyons, Esq., W. Long, Esq., Chas. Moore, Esq., — Oxley, Esq., J. Pye, Esq., Howard Reed, Esq., E. Terry, Esq., A. Town, Esq., Chas. Watt, Esq., J. Yeoman's, Esq.

The minutes of the last meeting were read and confirmed.

Correspondence read. The following gentlemen elected, viz.:—As *Governors*—Thos. Holt, Esq., Newtown; T. J. Roberts, Braidwood; J. Bowman, Sen., Richmond; J. Onus, Esq., Richmond; Henry Moses, Esq., Windsor; R. M. Fitzgerald, Esq., Sydney; J. Smith, Esq., Sydney. As *Members*— — Miller, Esq., Sydney; — Speer, Esq., Sydney; Henry Wallace, Esq., Braidwood; — Single, Esq., Penrith; W. Drynan, Esq., Sydney; J. Brush, Esq., Sydney; W. F. Josephson, Esq., Lane Cove River; Henry Brown, Esq., Hunter's Hill; T. G. Sawkins, Esq., Hunter's Hill; — Lindeman, Gosford; J. Brown, Esq., Dubbo; E. Campbell, Esq., Cook's River; T. K. Bowden, Esq., Ryde; J. Roberts, Esq., Sydney; A. A. Duncliff, Esq., Burrawang; G. W. Allen, Esq., Glebe; — Howarth, Esq., Wollongong; W. Trappitt, Esq., Orange; G. Lord, Esq., Sydney; L. F. Iredale, Esq., Liverpool Plains; W. Long, Esq., Sydney.

The Finance Committee brought in their monthly report, which was read and adopted.

The Journal and Scientific Committee laid on the table the "proof" of the first number of the SOCIETY'S JOURNAL and the schedule of charges for chemical analysis, &c., &c. In bringing forward the first number of the JOURNAL, Mr. Howard Reed stated the objects contemplated by the Council in undertaking this publication, and spoke at some length of the beneficial results that might be expected from it. He spoke of the necessity of bringing the members together, and of disseminating amongst them sound information respecting tillage, pastoral and horticultural affairs, and considered that, if efficiently conducted, the JOURNAL would prove the best privilege of membership. He went on to say "That although the *Journal and Scientific Committee* had undertaken the responsibility of bringing it out from month to month, they must depend in a considerable degree on the co-operation and communicative spirit of the Society at large. There were those amongst them who had acquired a reputation for specialities; there were those also who, during a long residence, and by close observation, had stored up a vast amount of experience, which should be placed on record; it was this reservoir of practical knowledge that the Committee wanted to tap. The streams derived from this source were to be blended with and corrected by scientific confluents from other quarters."

Mr. C. W. Lloydd was appointed on the Finance Committee in lieu of Mr. J. de V. Lamb, resigned.

Mr. Thomas Holt was duly elected member of the Council of this Society for the ensuing year.

The Secretery was instructed to inform all the Foreign Consuls residing in the colony that they have been elected honorary members.

The Bye-laws were ordered to be printed, a proof sent to all the members of the Council for final revision previous to the next meeting, where they will be adopted and published.

The Schedule of Prizes for the show, to be held at Singleton, on the 27th inst., was placed on the table, having been received by this morning's post. It was unanimously resolved—That the Secretary be instructed to acknowledge the receipt of this schedule, and in doing so to write to the Secretary of the "Northern Agricultural Association," stating that, in order to realize three of the principal objects of this Society, the offices and officers of the Agricultural Society of New South Wales are placed at the disposal of the Northern Agricultural Society to receive entries, and to take charge of such exhibits as may be sent for the same, and see to their safe delivery at Singleton; and also that this arrangement be duly advertised in the Sydney papers, if deemed expedient.

The meeting adjourned to Wednesday, 23rd September, 11 a.m.

CATARRH.

By A. Bruce, Chief Inspector of Sheep.

The term Catarrh is derived from the Greek word, *καταρρεω*, to flow down, and the disease may be described in general terms as a Catarrhal fever, attended with an excessive flow of mucus from the nose and eyes.

There are two descriptions of Catarrh—1st, what is known as *Common Catarrh*, a non-infectious disease affecting sheep at times in all parts of the world; and 2nd, *Malignant Catarrh*, peculiar to Australia. For the sake of convenience, the former will, in dealing with the subject, be termed *Common Catarrh*, and the lattter simply *Catarrh*, as it is the name by which it is known in these colonies—not that it is the correct one.

Common Catarrh may be either confined to individual sheep, or it may affect the greater part of a flock. In Australia it usually occurs in the winter or beginning of spring, and the sheep attacked are generally poor and weakly. It is most common among sheep which are housed. Those affected exhibit the usual catarrhal symptoms of discharge from the nostrils, defluxion from the eyes, coughing, and sneezing; but they do not as in malignant catarrh altogether stop feeding. This form of the disease is also distinguishable from malignant catarrh by the slightness of the discharge, the mildness of the attendant fever, and the absence of the laboured breathing which is always present in the latter. The chief tests, however, as to whether the disease is *malignant* Catarrh are its infectious character, the rapid development of virulent symptoms, and the large ratio of deaths. A flock should never be pronounced catarrhed because the symptoms in one or two sheep or the *post mortem* appearances are the same as those in some cases of malignant catarrh. In the absence of decidedly characteristic symptoms, the circumstantial evidence (so to speak) must be exceedingly strong to warrant the opinion that the attack is anything but *common* catarrh. Although this description of Catarrh sometimes kills through the destruction of the respiratory and other organs of the head like *malignant*, it is more to be dreaded for its sequel, as the inflammation of the lining of the nostrils and gullet which accompanies the disease extends at times to the windpipe and the respiratory organs of the chest, terminating in consumption, which sooner or later carries off the sheep.

Common Catarrh is sometimes caused by cold and exposure; and the sheep should, in that case, where practicable, be removed to a more sheltered locality. At other times the affection is clearly epidemic, and must be allowed to run its course. Care, however, should always be taken not to allow sheep shewing any catarrhal symptoms to come in contact with others, until it has been ascertained with certainty that the ailment is not *malignant Catarrh*.

Malignant Catarrh was first observed in June, 1834, among the flocks of Mr. Robert Campbell, of Burrowa; and although that may not have been the first outbreak of the disease, it then assumed a virulence which it never previously exhibited; for such a disease—carrying off as it did more than *three-fourths* of the infected flocks—could not possibly have existed without at once attracting attention. In the following March, April, and May, Catarrh showed itself on several stations on the Lachlan River in the Binalong district, and appeared to spread from the one station to the other. It shortly afterwards broke out in the Goulburn and Yass districts; and from these centres it seems to have spread throughout this colony, and even to the southern parts of Victoria. To such an extent were its ravages carried that in 1838 a very restrictive Catarrh Act was passed to stay the further spread of the disease, and was renewed from time to time till 1842. It was then amended, and again in 1843 and 1846, and lastly in 1853 by the Act 17 Victoria No. 27, which is still in force. These measures had the effect of greatly diminishing the disease, and of confining it to the more upland and colder portions of the colony, where, in some instances it seems to be constitutional, but is even there now fortunately of rare occurrence, through the improved management of the sheep, and partly also through some of the runs on which sheep were at one time kept, being now stocked with cattle.

Causes of Catarrh.

The causes of Catarrh may be considered as *Originating* and *Existing*.

Originating Causes.—Catarrh has been held by some to be a specific disease *introduced with Saxon sheep* imported shortly before its outbreak in this colony; by others it is considered to have been

caused by the lowering effect which the cross with these importations had upon the stamina of colonial sheep; and by some again the disease has been set down as an *epidemic*; while others hold that as it did not appear for a considerable time after the introduction of sheep into this colony it is a disease which *originated here through mismanagement.*

The assumption that Catarrh was *introduced by Saxon sheep* would appear to be unfounded, for there is no record whatever of malignant or infectious Catarrh existing in Saxony, or in any other part of Europe. It may be, however, that the crossing of the Australian sheep with the comparatively delicate and carefully nurtured Saxon merino tended to assist the deterioration, which the gross mismanagement of some sheep-owners was then bringing about; and those who take the second view of the question may be so far correct.

The opinion that Catarrh is an *epidemic*, or rather an *epizootic* disease is erroneous; for, if it were an epizootic, it would have occurred frequently and generally in all parts of this and the neighbouring colonies, which it has not, and no legislation could possibly have arrested its spread, as we know the Catarrh acts have so effectually done.

We now come to the opinion that Catarrh *originated in Australia, and through mismanagement* of the sheep; and there is no doubt but that it did so in the injurious system of breeding followed, and the maltreatment and neglect of the sheep on the part of some of the sheep owners who had taken to sheep farming in the colder and more upland districts without any previous knowledge or experience. These, then, were the true *Originating Causes* of Catarrh in its malignant form, and would again produce the same disease under similar circumstances. They will be shortly noticed in detail, and for the sake of perspicuity are treated in two sub-divisions—the *Predisposing*, and *Exciting Originating* causes — which again will be particularised in the order of the degree in which it is considered they affected the sheep.

Predisposing Causes.

1.—Breeding "in and in" for a lengthened period *without selection.*

2.—Breeding and rearing lambs twice a year from the same ewes.

3.—A continued system of breeding from rams or ewes which were weak or sickly, or too old, or too young.

4.—The weakening of the constitution of the sheep by the use of mercurial preparations in curing scab.

5.—Previous general debilitating diseases, such as fluke or foot-root.

There cannot be a doubt but that No. 1, under this head, was one of the chief, if not the chief Predisposing Originating, cause of the disease. "*In and in*" *breeding*, when carried out in a healthy flock or herd under a proper system of *selection* by a competent judge of the stock which he is breeding, both as regards their shape and their constitutional organization, will never deteriorate but improve it. It is only when attempted by incompetent or careless breeders who fail to make the proper selections, or perhaps, as was apparently done by many of the sheepowners at the time Catarrh first shewed itself, make no selection whatever, that "in and in" breeding is hurtful. This is now a well established fact, and while we know on the one hand that the healthiest and most valuable flocks and herds in the world are reared up under this system with *proper selection*, we see on the other the most worthless sheep and cattle produced by "in and in" breeding *without selection.* We thus find that the rule of like begetting like which pervades this system is a power either for good or evil, according as it is controlled and directed; and we can easily understand how a predisposition to disease would be intensified in the progeny of sheep, where the ewe and ram had, from a lengthened course of mismanagement of the flock to which they both belonged, become constitutionally weak and misshapen, and how comparatively harmless common Catarrh became in such sheep under a system of ill-treatment, over-crowding, and exposure, on bleak upland Runs both a highly virulent and infectious or contagious disease.

Cause 2.—*Breeding and rearing lambs twice a year from the same ewes.*—This course was followed to a considerable extent by many of the sheep farmers of that period on runs, and in seasons wholly unsuitable for such a mode of management, and it is scarcely possible to imagine anything that would have a more debilitating effect, both on the ewes themselves and their progeny. To withstand the evil effects of even an occasional double crop of lambs in the same year, the ewes must be young and strong, and on the best pasture, while the climate must be mild and the season favourable.

The effects of *cause* 3, although not so apparent in sheep, which arrive quickly at maturity, as in cattle, are undeniable both on the size and stamina of the sheep. If proof of this were required, it can be readily found in the small size of cattle on stations where breeding and fattening are combined, where there are no heifer paddocks, and where the spaying of the old cows is not followed.

Causes 4 *and* 5.—Although there is no proof on record that sheep which had been dressed with mercurial preparations for the cure of scab or which had suffered from fluke or foot-rot were more subject to Catarrh than others, there is little doubt but that the general and indiscriminate use of preparations of mercury in the cure of scab and prevalence of fluke and foot-rot in sheep depastured on the upland runs, all tended to assist in the weakening of the constitution which preceded many of the outbreaks of Catarrh.

That such flagrant violations of the correct principles of breeding as the predisposing causes

here mentioned, and especially causes 1 and 2, should have brought on this disease, is only what might have been expected, and when in conjunction with these the exciting causes which will next be enumerated are considered, the only wonder is that the disease did not break out before it did.

(To be Continued.)

PRACTICAL AGRICULTURE.

No. I.

HAVING had frequent occasion to notice a mistaken and wasteful application of labour in the ordinary husbandry of the majority of our smaller farmers, the writer is led to hope that a series of short papers upon agriculture as applicable to the central counties of the Sydney district, may be rendered of service to a meritorious and industrious class of our colonists; more especially to that portion of them who have not had opportunity to acquire much experience in the colony. He does not profess to treat the subject scientifically, his qualifications to instruct being based upon a long and intimate acquaintance with New South Wales and its agriculture, rather than upon any more solid foundation. His observations will be chiefly addressed to those industrious men who, having laid by out of their previous calling sufficient capital to enable them to farm on their own account, are desirous to create snug little homesteads upon which, during a long succession of years, they may continue to reap the reward of a steady and well directed industry. If by means of these papers he shall succeed in convincing them that the frequent losses of crop to which they are subject are not wholly attributable to an uncertain climate, and that they possess the means, if not of wholly avoiding these misfortunes, at least of greatly mitigating their severity, he will consider himself amply repaid for the trouble. Without further preface he now proceeds with the first paper.

It is well observed, that the success of almost every undertaking is most materially influenced by the beginning. To commence well is often more than half the difficulty well got over. Therefore, before you determine to become a small farmer, whether as tenant or owner of the land, consider well first your own fitness for the business you wish to undertake. If you have acquired no experience, no skill in the different kinds of labour you will have to turn your hand to—if you purpose to be dependant to any extent upon the labour of others, who are to be paid by you, depend upon it you are not fit to take a farm. Learn first by labouring for others how to perform to advantage the different kinds of work you will have to do for yourself.

Next—supposing this difficulty removed, reflect carefully upon the extent of your means. If in service, do not rashly give up a state of dependence, in which you can lay by any material portion of your wages, until you have saved enough to purchase the necessary implements and working cattle for a farm, besides having a reasonable prospect of enough to maintain you for eighteen months or two years independently of its produce. If, in over haste to begin on your own account, you heedlessly embark in a pursuit which in this variable climate is subject to more than ordinary vicissitudes, not only in the amount per acre of its agricultural produce, but in the value which that produce will bear in the market, you will probably get entangled in difficulties, which will be a drag upon your whole future progress. Depend upon it you will gain time in the long run by waiting until you have skill enough, and capital enough, to make a fair start.

The next thing to be well weighed is—where to begin. Do not involve yourself with land already worn out, or rendered foul by slovenly management—it is far better to begin with uncleared land. Every man who professes to get a livelihood by farming, should understand something of the quality of the soil. Too many, however, are influenced by the colour or appearance of the mere surface. The depth of the mould should also be well looked to. No land can be expected to remain long productive, unless there be a foot of good surface soil—but the deeper it is the better. Be careful also to see that there is convenient access to the farm. Without a tolerable road to a sufficient market, the most fertile lands will probably not pay to cultivate; the price of their produce will be eaten up by the expense of carrying it to the purchaser. If you propose to rent land, take it, if you can, at a long lease. Clearing leases, as they are termed, are bad for both landlord and tenant. Every tenant farmer should rent his land for not less than twenty-one years. The rent of uncleared land should be nearly nominal for the first year or two, gradually increasing to the maximum amount agreed upon. An agreement of this nature affords the tenant a fair prospect of being enabled to expend all his means in converting the rude forest into fertile fields before he is called upon to pay anything material for their occupation.

Besides the land he proposes to cultivate, (which for a single family should rarely, if ever, exceed thirty to forty acres), every small farmer should, if possible, secure at least an equal extent to be enclosed for pasture. If a tenant, he should covenant to clear and enclose it, within a limited period, in consideration of the use of it rent free for an additional period, but on condition of not bringing it into cultivation. The occupation of an enclosure for the use of his working cattle, will prove of the greatest service to the small farmer, and he will find it well worth a low rent after his term for using it rent free shall have expired.

Supposing that you have commenced with a piece of wild uncleared land, do not imagine, as too many are apt to do, that you will gain time by scratching up a patch of imperfectly cleared land, to sow it hastily, and probably out of season. Many beginners appear to imagine that by such means they will secure to themselves food at a cheap rate for the ensuing year. They can scarcely make a greater mistake. The probable result is, that the crop will not pay for the seed and the labour of putting it in, and that instead of a cheap loaf they ensure for themselves a very dear one. Let a man setting to work for himself, resolve from the first to perform every thing in the best possible way his means will permit. And as the foregoing is perhaps the worst possible way, here is one far better.

When you have satisfactorily arranged for the occupation of a farm, endeavour so to contrive it, that you may remain in service, or otherwise beneficially employed, for say a year or two longer; but so circumstanced that you may be able to devote a few weeks occasionally to your yet uncleared land. As soon as you can, carefully look over the part you propose to clear, and reserve all the trees upon it capable of being converted into materials for fences or buildings. Then set to work to girdle or "ring-bark," as it is termed, the remainder; that is remove from every one of the larger trees a girdle or strip of bark, completely into the sapwood, six or eight inches wide; mind, if the smallest portion of the inner bark be left within the girdle thus removed, the tree will continue to live. Trees of less than a foot in diameter, it is better to cut down, or grub up by the roots. The operation of girdling should only be performed when the sap is up, and the bark separates freely from the wood; this is invariably the case when the ground is moderately moist. When the bark parts freely from the wood, an industrious man may girdle from five to ten acres of ordinary forest land in a day; and if he be careful to do it thoroughly, the tree will die in a few months. If the sap be not up, as it is termed, and the bark does not strip freely, the operation will be much more tedious. He will have to cut quite through the sap wood to make sure of completely removing the whole of the inner bark, and even then many of the stumps will not die, but make fresh shoots from below. Watch therefore for a time when the trees are making growth; the more fresh shoots there are upon the tree, the more rapidly it dries up after being girdled. It is best not to girdle trees the wood of which it is difficult to burn when dry. The "water-gum" of the flooded lands is perhaps the only kind of forest trees, upon agricultural lands, on this side the mountains, which is of this description.

The next thing you should set about is to convert all the reserved trees into posts and rails for fencing, and slabs, &c., for building, stacking them carefully in heaps as you proceed, that they may dry without cambering. Fences and wooden buildings are always much more durable when the materials are dry and seasoned before they are put together. These jobs completed, now wait patiently a year or eighteen months, until the trees you have girdled become completely dry. If a favorable period should offer itself for opening holes round the stems of the large trees preparatory to burning them down, you should endeavour to avail yourself of it. Remember, that when the ground is thoroughly moistened, one day will enable you to do as much of this kind of work as you would perform in three, if the ground be hard and dry. These holes should be opened about a foot deep, carefully removing all the lateral roots to that depth as you proceed. You may, also, at the same time advantageously grub up by the roots all the smaller trees and saplings. On some descriptions of forest land so few large trees exist, that it is better to commence by cutting them all down with the axe, instead of killing them as they stand by girdling. But whichever of the two methods of destroying the trees it may seem best to adopt, on no account attempt to burn them off, until they become thoroughly dry. There can be no greater waste of labour than to set about this operation while they are still green and full of sap. In numerous instances, witnessed by the writer, the expense of burning off has been at least trebled for want of a little forethought, in having neglected to kill or cut down the trees a year or two before. The cost of girdling can rarely exceed six-pence to eight-pence per acre; that of felling, five to eight shillings, especially if performed by the farmer's own hands. Now it is only one or two years' interest on this comparatively small outlay which he has to devote, in order to save at least one-half the expense of burning off, or probably from 15s. to 25s. per acre.

As the operation of burning off proceeds, be careful to remove every stump and root in the way of the plough, say to the depth of at least nine or ten inches. If you neglect to do it now you will have abundant cause to regret it afterwards. Nothing can be more slovenly, more conducive to the growth of weeds, than the practice of sowing land with the stumps still standing, and the ground encumbered with unburnt logs. It is quite lamentable to see how many really industrious men muddle on with their fields disfigured by these unsightly objects, promising themselves probably, each successive year, that they will have them removed before the next, until their land, chiefly through the uncultivated patches round the stumps, becomes so foul that it will no longer pay the expense of cropping. By begining properly this great evil might be avoided, and at no additional expense. A careful man who understands what he is about, and lays his plans with judgment, will, by biding his time, thoroughly clear his land at far less cost than is usually incurred by the occupants of the miserable half-cleared patches so prevalent throughout the country.

Some landlords will not permit an acre to be cultivated until it is thoroughly cleared and fenced, and they are right; it is quite as advantageous for the tenant as for themselves. If land be not thorougly cleared of the stumps and logs at first, it becomes much more expensive to destroy them afterwards; the fuel necessary to burn them must be carted from a distance.

In burning down trees or cross burning logs into convenient lengths for rolling together, small fires judiciously applied are found to be more effective than those which are large. The best plan is to have a great number of small fires alive at once, and to have them attended to as frequently as possible, both night and day.

As soon as possible after the timber is burnt off, spread the ashes and burnt soil underneath carefully over the land. A single heavy shower is sufficient to discharge into the soil below all the fertilizing salts these ashes contain; and if they are not spread out in time, the land for a year or two will be injured by patches upon which no crop will flourish on account of its excessive rankness. ***

FOOT ROT IN SHEEP.

By J. Pottie, Veterinary Surgeon.

The pathological treatment of sheep diseases has somehow for ages been left almost exclusively in the hands of the shepherd. But lately, principally through the instrumentality of agricultural associations, veterinarians spend a portion of their time investigating the causes and cures of many diseases such as fluke, foot rot, and scabs, and these disorders have ceased to be the formidable and ungovernable enemies of our flocks.

It is not surprising that shepherds should have continued so long the exclusive agents in killing and curing. They are generally in all European countries a most intelligent lot of men so warmly attached to their profession as to inspire the sheep with peculiar confidence. You find them clinging to their lonely duties amid the wild storms of winter, among the barren wastes of the bleak mountain side, unmoved by the fierce buffetings of the rushing tornado. They have been found with their flocks and faithful dogs hemmed in and covered over by the drifting masses, in some places of snow, in others of sand. No tales are so thrilling as those told of their daring exploits. Some of the most remarkable men that we meet with in the page of history have spent their early days and nights among the scented heath and hetheray downs. Lately these gifted men that lead the shepherd's life, have had the advantages of popular works and popular lectures on the veterinary art; and in many cases the native tact has been supplimented by a course of veterinary instruction.

We are here, however, very differently situated. Few men in this country betake themselves to this lonely life until far advanced in years, and unfortunately, many of these years have been spent in ways of indulgence ill suited for the study of pathology. From such men we cannot expect our flocks to receive that amount of care necessary; it is impossible for the squatters to confide in their tact or ability. Add to this the distance stations are from medical advice, and the numerical standard of our herds and flocks, and we will at once see the necessity for the study of diseases common to the lower animals being encouraged and assisted.

Foot rot is a term that has been employed to express all the diseases which attack the feet of sheep, and little or no attempt has been made to demonstrate the greatness of this mistake; hence both the shepherd and owner have come to regard every disease of the feet as foot rot. It is perfectly true that all diseases are apt to run into foot rot; but the wide and indefinite meaning given to the term has beset the practical man with difficulties. Medicinal agents that have for a length of time succeeded in effecting easy cures, are suddenly discovered rather to impede than advance the healing action. This has been the experience

of the most practical. Lately, in the columns of *The Mail*, an essay was reprinted, written by a Scottish shepherd, full of facts and good common sense. Here, too, the puzzling problem met the man. Although he found vast varieties in the cause and course of disease, yet he had reduced the treatment down to two remedies—useful, however, only in certain cases. We, however, do not often get at disease in its early stages, and hence a different kind of treatment is necessary. In this country we cannot afford to follow out any plan which requires days and weeks of personal attention to complete. Whatever is to be done must be done at once, and must need but little further care. This alone can make it of universal service here.

We find then, under the designation of foot rot, four distinct diseases, viz., 1, laminites, or founder, or inflammation of the camina; 2, joint ill; 3, vesicular disease; 4, and forinoad growth. These diseases differ in their nature, origin, causes, courses, symptoms and treatment.

Foot rot is a disease that we never expect to be wholly rid of, for its causes depends on conditions that must always be with us. Indeed, the further we advance in perfecting the productive powers of the soil, so much the more will we increase the agents that are capable of producing certain kinds of it. It is, therefore, a disease that will live long with us, and long continue to molest our flocks. If we enumerate its causes this will be visible at a glance. It always (on certain soils) is produced by sudden changes of wet and dry weather, and of neither of these atmospherical changes can we dispose. It will generally be produced by removing sheep from a hard hill country to a low soft land; and this change is absolutely necessary for the speedy preparation of stock for market. It flourishes most powerfully amid the luxuriant greens of gentlemen's parks, and the coveted spots of all sheep fatteners. The accumulation of filth by neglect may be swept aside; the marshy undrained land can be made sound by deep drainage, but we cannot part with the rich, soft, loamy soil, and luxuriant pasture. Indeed, we are yearly seeking to make the pasturage of the world like that of a entleman's, and just in proportion as we reach this goal of agricultural perfection, do we favour the causes competent to engender the foot rot.

Foot rot is seldom or never seen among the bare high Highland hills. There it cannot exist even amidst the dews and fogs and frosts and changes; but shift these same hardy sheep down among the luxuriant herbs of the low lands, and it appears at once.

A FEW PLAIN DIRECTIONS RELATIVE TO THE FORMATION OF ORCHARDS AND PLANTATIONS.

SOIL AND SITE.

Sheltered situations and deep soils are the most proper for plantations. If the surface be only moderately fertile, anything better than a mere shifting sand bed, it cannot be too deep, or too completely permeable to water. Setting aside such a sand on a loose bed of stones as wholly unsuitable, free passage of water to a great depth is certainly the most important condition towards the ultimate success of a plantation. Fertility, if needed, may be imparted, but that perfect drainage to a great depth which in this climate is so especially to be desired, never. Therefore above all things, if it be in your power, choose a soil in which there is no obstacle (such as rock, shale, or a strong tenacious clay), to impede the downward growth of the roots, or the free passage of water to a considerable depth—a score or two of feet even. No matter if the subsoil be a mere bed of rubble stones or gravel, provided there be a fair depth of good loamy soil above. If, however, the surface soil be deep and fertile, so much the better. The peach, the mulberry, and the fig flourish most in a very sandy soil; if it be but deep it can scarcely be too sandy. All the other descriptions of common fruit trees prefer a soil of greater consistency; but the apple and the orange affect perhaps the strongest, (for the latter it can scarcely be made too rich with manure), whilst the pear will accomodate itself almost anywhere. But now that facilities are at length offered for deep subsoil drainage by means of drain tile pipes, such as are made at the Sherwood Scrubs Manufactory, near Parramatta, it has become practicable, at moderate outlay, the immense advantage considered, to improve most sites, and to render many in their natural condition ill-adapted for planting through the unpermeability of the subsoil so well drained as to render them well suited for the purpose. But it is to be observed that the apple will also flourish in any sandy soil, provided it be made rich by manure, and that in such soils it suffers little, comparatively, from the apple aphis or American blight. In such sandy soil, it would seem that the insect finds difficulty in establishing itself on the roots; and as the cold of winter and the great summer heats are alike destructive to it, it is easily kept under. It is only where the roots are attacked extensively, that apple trees are severely injured by this pest.

PREPARATION OF THE SOIL.

The progress of trees in properly prepared soil is comparatively so rapid, that trenching to a good depth will, generally, at the end of four or five years, prove to be the most economical process. It is therefore desirable that land intended for orchards, of other plantations, should be trenched eighteen inches or two feet deep. In performing this do not have the ground broken too fine, a certain degree of lumpiness is more favourable to the growth of most plants. The land in this state becomes better drained after excess of rain, and in dry weather retains a certain degree of dampness longer than if it had been finely comminuted. If the subsoil be of a stiff retentive nature, loosen it as much as possible in trenching, and if possible by tile drains sunk deep into the subsoil, endeavour to provide for the free escape of superfluous water in wet weather.

But although trenching is recommended, inasmuch as its expense will probably be always compensated by the increased growth of the plants, there are numerous situations in which it may be dispensed with. In deep soils, where there is no danger of a lodgment of water, trees may be planted by opening holes, more or less wide and deep, according to their size. For fruit trees, unless in a soil naturally very loose and friable, these holes ought to be five or six feet wide, and two feet deep. but care should be taken to guard against water being retained in the bottom. To make them deep in a stubborn, retentive soil, unless previously well and deeply drained as above recommended, is to ensure the failure of the plants. Unless you do so drain it is better in such soils to trust to the surface mould only. The rule however should be, in deep soils to make the holes deep, but to make them wide rather than deep, where the clay approaches the surface. After being opened, the soil should be returned to them until you are about to plant.

PREPARING THE HOLES AND THE PLANTS.

The ground being prepared, when the season arrives choose the first favourable opportunity; early planting

always succeeds better than late. Do not, however, attempt it whilst the ground is wet or heavy after much rain; by being moved or trampled upon in this state it is apt to become compact and "sour," and may not recover its mellowness for a long period. Planting should not be attempted when the ground sticks much to the spade or the feet, it is better to wait for drier weather. If the land on the other hand be very dry, as will sometimes happen at the season for planting, it is best to open the holes for the trees the day before you plant, and having placed the soil from them in one or two heaps, to pour a few gallons of water into each hole, and the same upon the heaps of earth thrown out, which should have a basin formed upon each to receive it. The next day, just before you plant, mix the wetted soil with the dry (both that in the hole and that which was thrown out), by turning it over lightly with the spade, from the bottom, two or three times. A slight but uniform degree of dampness will thus be imparted to the whole, without having ensured which, your planting would probably become lost labour; for if the soil in which you plant has become very dry, you may pour on water in vain, it will not penetrate, and your trees might perish for want of moisture under the most copious waterings. But after you have rendered the ground slightly damp by mixing it well with a small proportion of wetted soil, water will penetrate through it freely.

Endeavour to plant none but well-rooted vigorous plants. A small or badly-rooted tree rarely flourishes, for a long time at all events, and a year or two in growth is almost sure to be lost by using such plants. Take precautions to get trees of good sorts, and correctly named; this is especially of consequence in an orchard, you may otherwise be subjected to great disappointment when they come to bear. It is far better to pay a little more for strong healthy trees, where you have a reasonable assurance of their being what they are called, than to plant those which cost less at first, but which may prove to be very dear in the end. If the plants you intend to use be growing near at hand, have them carefully taken up, if possible, with every root, and preserve these roots from the drying effects of sun and wind until you can get them into their destined places. If your plants come from a distance, they can scarcely fail to have suffered more or less in the transit; much, however, depends upon careful packing. It is desirable, at all events, to freshen their roots by soaking in water for some hours before you plant them, if not otherwise of use—it will render them pliable again after having been cramped up in the packages. It is also proper to have their heads well cut back, if it was not done when they were taken up; the same practice is indeed of service, to a greater or less extent, whenever trees are transplanted in a dry climate.

PLANTING.

Every hole should be made large enough to receive the roots without cramping or twisting them round. Return as much of the soil into each hole as will form a flattened cone in the centre, at such a depth from the margin, as will, when the tree is placed upright upon it, bring its collar, (the point of junction of the stem with the roots), as nearly as may be, level with the surface. Some allowance must be made for settling if there be much depth of very loose earth under the plant. Then spread the roots out carefully with the hand all round over the surface of the cone; if you have it, scatter lightly two or three spadesful of well decomposed manure just over the roots, it will greatly promote the immediate formation of young fibres; but do not add much manure, except you are planting orange trees, as it might be productive of more harm than good. Add the remainder of the soil, not *thrown* in roughly with the spade, but as lightly as it can be placed, care being taken to hold the stem in an upright position whilst the hole is being filled up, and to lift it up gently once or twice during the operation, to bed the roots thoroughly in the loose soil—but if you have water at hand do not, according to common practice, compress the soil about them with the feet, it is better to settle it down as will be described below, especially if the weather and the land be dry. When the hole is filled up, form the surface into a small basin about two-thirds of the diameter occupied by the roots, with the margin all round, as well as the bottom, as nearly level as possible. Take an old broom without a handle, a bunch of small branches or twigs, a tuft of rushes or course fibrous grass, either of these will answer, and lay it flat in the bottom of the basin. Upon this pour, in as rapid succession as possible, two, four, six, or more buckets of water, according to the extent of the roots or the dryness of the soil; observe, that if it be naturally in a moist state, the weight of a very small quantity of water will sufficiently settle it down about the roots, more would be hurtful; but if barely moist enough to let the water penetrate freely, a large quantity may be required, as it is desirable to have the whole of the loosened soil around the tree thoroughly moistened at once. Rain may not come in sufficient time for its early growth, and repeated waterings are always, if possible, to be avoided. Well watered in this way at first it may endure a drought, of months in duration, without suffering.

A few hours after planting, or at all events, before the wetted surface begins to dry, throw a little dry earth lightly over it, to prevent it from caking or cracking; and at a convenient opportunity level the soil about the stem, observing, that in a climate subject to drought, it is not advisable to leave the ground about the stem of a tree above the general level of the neighbouring soil, but, if anything, the reverse.

The best season for planting deciduous trees is as early as possible after the fall of the leaf. Evergreens, such as the orange and loquat, succeed best when planted in early spring, or in the autumn, just as they are about to make their growth; but in either case, it is a prudent precaution, when they are taken up to cut them well back, and to remove almost all their leaves, especially if they are to be conveyed to a distance. If an evergreen tree be planted in this climate, with its branches and leaves entire, it runs great risk of perishing before its roots can strike out sufficiently to support it. If you could be sure that the air would be as saturated with moisture as it usually is in England, the removal of any large portion of its leaves might be improper; but we know from experience that here the atmosphere, which at the time of planting may be loaded with moisture, may, in a day or two afterwards, reach a degree of dryness utterly unknown in temperate Europe. So long as the leaves of the plant can freely absorb from a moist atmosphere, they will continue fresh, and contribute to the early growth of the roots, but the moment this moist atmosphere is converted into one of considerable aridity, the system of leaves becomes positively injurious, the moisture existing in the stem and roots is exhausted to supply the loss occasioned by such an extent of evaporating surface, and the leaves themselves wither, leaving the plant in a far worse condition than it would have been in, had they been removed, with the greater part of the young shoots, at the time of taking it up.

It is therefore recommended that all evergreens (resinous cone bearing trees alone excepted) should be cut back, and deprived of a good portion of their leaves, when taken out of the ground.

When you are planting out evergreens or other plants from pots, which may be done with success almost at any season, there is another danger to be guarded against, the neglect of which very often leads to failure. A plant growing in a pot has a very considerable quantity of roots in proportion to the extent of soil it occupies. In dry weather this little ball of earth will become so exhausted of moisture, by the absorption of the plant alone, as to require being well moistened every day; neglect this but for a single day, and it may become so dry that the water refuses to penetrate. The surface may look moist after being watered, and the water seem to penetrate freely, but it may escape by the sides of the pot to the bottom, without moistening the earth within. In the meanwhile the plant languishes, and the inexperienced gardener wonders at the cause. It is more difficult than one who has not tried it would suppose, to get the water to pass freely

into a thoroughly dried ball of earth. Now an orange tree, camellia, or other plant turned out from a pot into the open ground, with its ball of earth, probably, matted with roots, remains for a time, pretty much in the same condition as if still confined to its pot—a few weeks must almost always elapse before it can strike much root into the surrounding soil. This soil may be perfectly moist, whilst the ball of earth to which alone the roots of the plants are confined, may become, in a few days, so dry, that all the water poured upon it, to freshen up the plant, passes round, without penetrating it. To guard against this evil, it is desirable in planting out, to crack, by gentle means, the ball of earth in more than one direction, to form over it a very small basin, smaller than the ball of earth itself, and in dry weather to examine this ball every day, and to pour into the basin a small quantity of water as often as it may seem to need it, never suffering it to become thoroughly dry. After two or three weeks the plant will probably have made sufficient fresh roots to dispense with this close attention. It is prudent, however, not to neglect the frequent examination of plants turned out of pots, or their balls of earth rather, until they begin to make vigorous shoots.

It is a good plan to shelter evergreen plants of small size, by sticking into the ground around them, branches of trees with their leaves on. These fronds should be so inserted as not to extend far above the young plant, and should be placed thickest on the side from which most injury is to be apprehended from sun or wind. As soon as the plant begins to grow they may be gradually removed. It should be borne in mind that it is never desirable to exclude the light altogether.

Another excellent plan is to cover the surface around plants, for a moderate extent, two or three inches thick with moist decaying litter. Besides preventing the escape of moisture by evaporation, it undoubtedly imparts some principle of fertility to the earth independently of what may be derived from the decomposing substances themselves. The ground amongst trees should be kept free from weeds by slight occasional hoeings, avoiding the use of the spade when the roots begin to spread around. Never crop with vegetables near a tree, it is far better to have your fruit trees and your vegetables quite distinct from each other, than to have both starved and badly grown by being together. No ground devoted to trees, unless of first-class quality in depth and fertility, should remain many successive years without being enriched. Guano, finely ground or decomposing bones, rotten stable dung, or other animal manures, decaying litter, maize stalks, or other rich vegetable matter—all these will answer if applied with judgment, in sufficient quantity, and in suitable season. But some such enrichment will be occasionally requisite to keep an orchard in full vigour, and in a productive state of bearing, and bearing this in mind, they who plant should be careful to begin manuring in time.

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WINE RETURN—ALBURY DISTRICT.

(To the Editor of the Sydney Mail.)

Sir.—At your request I send the report of my vintage at Albury. The lateness of it and the strength of the "must" will, no doubt, surprise some of your readers who are accustomed only to the climate of the eastern parts of the colony; and it is to this that the difference in the wines of the two districts is to be attributed, and not, as is often supposed, to soil. The attenuation reached by the Muscat in such a short space of time is to me even a matter of surprise, and it might without injury have been racked earlier.

The other kinds of white wine will continue to attenuate, and are probably by this time down below 1000, or, in other words, below the weight of water.

Contrary to experience in the eastern parts of the colony, the temperature at Albury during fermentation is *too low*, and for this reason I have adopted cellar fermentation, though I intend to store my wine above ground; and, should another season be so late as this, I must provide means for warming the fermenting cellar to 68 degrees or 70 degrees, as I am convinced that a certain amount of heat is necessary to a good attenuation.

I find that the strongest wines are most sought after, and it is rather an advantage than otherwise that a trace of sugar should remain, the public taste not having yet become used to a thoroughly dry wine.

I have added the strength of must indicated by the Hunter River scale, in order that my figures may be more intelligible; and, hoping that the enclosed may be found to contain the information desired,

I remain, &c..

Sydney, 2nd July. P. F. ADAMS.

Report of the Vintage at Ettamogah, Albury, for the year 1868.

The gathering of the grapes commenced on the 17th of April, being three weeks later than the time of starting last year. The Muscats were first picked, and were in very good order, the specific gravity of "must" being as high as 1134, and the yield, though one-half the vines are not yet in full-bearing, was at the rate of 544 gallons per acre. The next gathered were Verdeilho and white Shiraz, and the specific gravity of mixed must ranged from 1117 to 1130 the yield being at the rate of 400 gallons per acre. The greater number of these are young vines, and were partly damaged by the hail, the foliage not affording so much protection to the fruit as that of the older vines. The Reisling were next gathered. The grapes were very fine, scarcely a bad bunch amongst them. The specific gravity of "must" being 1115, and the yield at the rate of 600 gallons per acre. Of Shiraz (red hermitage) and Malbec (mixed) there were but 300 gallons made, the specific gravity of "must" being 1112. And a few gallons of "must" from Bergundy vines not yet in bearing gave a specific gravity of 1136. Owing to the lateness of the vintage, the cold weather had set in before the gathering was completed, and occasional frosts considerably reduced the temperature of the fermenting house, consequently the violent fermentation extended over a much longer period than usual. The difference of temperature, however, was only perceptible in the smaller casks; and though in them the fermentation was slow, it was steadily progressive, and the result has been satisfactory, The following figures will show the strength of "must," and the attenuation after the violent fermentation.

Muscat Grape: Specific graxity of must, 1130 lbs. of sugar per gallon according to Hunter River scale, 3·22; in 11 days reduced to 995; time of racking, first week in July.

White Shiraz and Verdeilho Grape: specific gravity of must, 1124 lbs. of sugar per gallon according to Hunter River scale, 3·30; in 20 days reduced to 1015; time of racking, first week in July.

Shiraz and Malbec grape; specific gravity of must, 1112 lbs. of sugar per gallon according to the Hunter River scale, 3·06; in 10 days reduced to 996; time of racking, 2nd of May.

Riesling Grape: Specific gravity of must, 1115 lbs of sugar per gallon according to Hunter River scale, 3·07; in 17 days reduced to 1014; time of racking, last week in June.

The average temperature of the fermenting-house was 62 degrees, and the highest temperature of the fermenting "must," 78 degrees.

John Beatt, Manager.

Sydney Mail, July 11.

THE RAMIE FIBRE.

The New York shipping list has publishing an interesting paper on the Ramie plant, the culture of which is now attracting much attention in Lousiana (United States). Mr. Leframe, of New Orleans, has also published a pamphlet on the origin, propagation, culture, and cleaning of the 'Ramie.'

This plant, originally found in the Island of Java, where its fibre, which closely resembles Sea Island cotton, has

long been used by the natives in the manufacture of cloth in a primitive way. About ten years ago the plant was introduced in Mexico by a distinguished botanist, and throve so well that its cultivation was last year attempted in Louisiana with entire success.

The principal conclusions established by the experiments made in Louisiana are:—That the plant can be very easily cultivated both in the alluvial and upland soils; that the fibre is as strong and as fine as that of flax or cotton; and that it is worth in Europe double the best Sea Island cotton, and four times the best upland; that it can be made to yield four crops a year, each crop of more pounds to the acre than any ordinary yield of cotton; that it is not liable to be destroyed by the caterpillar, or other agencies so commonly destructive to cotton; that it requires but little labour after the ground is prepared; and will extend its roots and propagate itself almost indefinitely in any direction that may be marked out for its growth.

This plant may prove a source of great wealth, and to this end it is to be hoped that a fair trial will be afforded.

The *Gardener's Chronicle* contains several articles on the Ramie, which seems to attract much notice in England. In that journal of May, 1868, we find the following:—"China grass (ramie fibre) is not new to British commerce, it has been known in England for many years, first in its woven condition as China grass cloth, and afterwards the fibre itself was introduced. Its fineness and suitability for weaving attracted at once the attention of the manufacturers, but its botanical origin was for some time unknown. The late Sir W. J. Hooker proved it to be the Bœhmeria Nivea of Gaudichaud (urtica nivea of Linn). When first imported into England this fibre realised from £60 up to £120 a ton. This high price induced Sir W. J. Hooker to attempt the growth of the plant in England. In 1851 it was sown in the hot-houses at Kew Gardens, and he then recommended the culture of the "Ramie" in such of our colonies as possess a climate nearly analagous to that of Canton. His recommendation was allowed to lie in abeyance for the past sixteen years, and has only been brought to light again by a report sent from Bradford (Yorkshire) to Washington (United States), by the American Consul, residing at the former place. He pointed out to his government the high price the fibre of this plant realised in the English market, and strongly advised the introduction of such a valuable plant in their territory. His report found its way back to our government, who immediately referred to Dr. Hooker for his opinion as to which of our colonies would be likely to prove suitable for its cultivation. Despatches were sent to the several colonial governors, from which we gather the following information—

Jamacia.—The plant introduced in 1854 has been found to thrive most admirably, producing two crops of shoots annually, which grow from eight to ten feet high; it is from these stems that the fibre of commerce is produced.

Trinidad.—The plant is in the Botanic Gardens, and with a trifling expense the stock might be increased to many thousands in a few weeks. Considering the freedom with which it grows, there seems to be no reason why the plant should not be most successfully cultivated in the island.

In the Bahamas the soil is quite unfit for its growth.

Lagos.—A requisition is sent for seeds and plants.

Mauritius.—Sir H. Barkly says there can be no doubt that the Bœhmeria Nivea will grow readily; two species of the same genus being indigenous to the island.

In the Straits Settlements there seems to be little chance of its success.

The most encouraging and interesting report is from

Queensland.—And is extracted from a letter from Mr. Walter Hill, director of the Brisbane Botanic Gardens to Sir G. Bowen. "I received from Sir W. J. Hooker some plants of the China grass, so far back as 1855; about a quarter of an acre of ground was for two years devoted to its cultivation; they flourished vigorously, and required comparatively little care in their preparation or preservation. There being at the time no very tempting demand in the European markets for the fibre, and there being no machinery or appliances in the colony for extracting it, and finding that the plant had attained an exhuberance and tenacity of growth which was gradually encroaching upon more ground than could be properly spared, caused it to be removed to the border on the bank of the river, where it can be seen growing now in a very thriving condition. Some of the fibre was, however, sent to the international Exhibition in 1862; and, as I believe there are now in the colony means for extracting it on a more systematic and extensive scale, I have lately been contemplating the advisability of again setting apart a portion of ground for the exclusive cultivation of the plant, in the hope of stimulating others to embark in the enterprise."

In the Botanic Gardens Mr. Charles Moore has devoted much attention to the culture of the Ramie. This valuable plant grows there to perfection, and from the stock we possess in Sydney it can be propagated throughout New South Wales readily. From all we have read on the culture and preparation of this fibre, we do not see why it should not become an article of export. We note that a patent has been taken in America for a simple and ingenious machine to extract the textile from the ligneous substances—the cost of which is only 225 dollars at New Orleans. We also notice that Manchester houses, craving for this fibre, are calling in advance for all that can be produced, and are ready to furnish capital for its culture.

Dr. MUELLER'S STATEMENT RESPECTING RUST IN WHEAT.

(Extracted from the Report of the Commissioners on the Diseases in Cereals.

"Melbourne Botanic Garden,
"15th February 1868.

"Sir,—In compliance with the request conveyed by your telegram of the 12th instant, I have the honour to submit to the Rust Commission of Adelaide, the principal results of microscopic investigations on the rust fungus occurring in wheat, these resting mainly on the observations of Professor Tulasne, of Paris, and particularly on the still more recent discoveries of Professor de Bary, of Hull. Some of these luminous and important observations I have been able to renew here, and I cannot praise too highly the profound researches displayed by these great mycologists, in reference to this subject.

"Two uredinous fungi more especially infest the wheat, *Puccinia graminis* and *Puccinia straminis*, which in certain stages of development represent the *Uredo linearis* and the *Aecidium berberidis*, regarded formerly as distinct fungi.

"These, in their mode of development, pass through several stages. The most destructive of these two, *Puccinia graminis* or the striped rust, appears early in the summer, in small oblong spots, which are apt to flow in lines together. They arise from a mycelium which ramifies in the cellular tissue beneath the epidermis of the cereal, and thus serves the nutrition of the fungus at the expense of the affected plant. In advancing to its first stage of fructification the epidermis bursts, and oval red-brown stalked spores, now designated summer spores, or uredo spores, protrude; the spores seceding from their stalks, and new stalked spores being produced in succession, again to be washed away by rain, or to be wafted away by the air, or to be carried about by insects.

"These particular kinds of spores have the power of immediate germination, and retain it for some weeks. They may germinate in a moist medium within a few hours, each spore pushing forth an elongated cell, which, root-like, penetrates into any one of the stomata of the epidermis, and ramifies in the cellular tissue beneath, to form a new mycelium. Ripe spores, of the original kind, are produced from the new mycelium so formed, in comparatively a few days. But after a rapid succession of this form of reproduction the fungus passes into another stage. Towards autumn a second kind of spores, now distinguished as autumnal spores, or teleuta spores, are at first promiscuously developed with the summer spores, but subsequently autumnal spores solely; and as their colour is darker, the red-brown

of the rust fungus, verges, by the gradual prevalence of the autumnal spores, into a darker colour, into almost black. These autumnal spores are distinguished by greater size, are generally in a pair, one above the other, terminating the stalk without seceding from it; they are also characterised by stronger cell-walls.

"These autumnal spores do not germinate before the next spring, in cold climes.

"In spring each of these two teleuto spores send forth an articulated stalk-like protomycelium, from each joint of which stalked sporidia arise, the ripening sporidia breaking from their stalks, while the mycelium perishes. These sporidia are much smaller than the spores, and also far more tender.

"The formation of protomycelium and sporidia is completed most rapidly, the only condition for development being moist warm air. The tender sporidia germinate immediately, and with the greatest facility, and what may appear marvellous, their development now, not takes place on wheat or any other cereal, or even grass of any kind, but on some other plant. Professor de Bary has traced, as yet, the development of these sporidia in middle Europe, only on the leaves of the berberry bush, while here in Australia the mystery of their growth has not yet been penetrated, and it thus remains to be ascertained on what especial plants these sporidia find a genial location for this stage of life of the rust fungus.

"The sporidia produce by downward growth, a mycelium, rootlet-like; but their off-shoot passes not through the stomata of the berberry leaf, but perforates the walls of any of the epidermis cells, within which they ramify, and then force themselves into the deeper tissue to form a new mycelium. This latter sends out in one or two weeks, a fourth kind of reproductive organ, and called decidium, and formerly regarded as an absolutely distinct fungus, accompanied by peculiar accessory organs called spermagonia. The æcidia are orange-coloured cup-like vessels; their walls are cellular, and from the bottom of the æcidium, arise numerous little stalks, each bearing a simple and rather long series of again peculiar spores. The æcidia are first buried under the epidermis, but burst through it at the moment of fructification. These vernal or æcidium spores separate from their strings readily on ripening, and then resemble the summer spores in structure, in mode and in time of development, passing like them through the stomata, and forming mycelium beneath the epidermis, but the next progeny produced from these æcidium spores are the ordinary uredo spores. The first growth of the uredo state of the fungus may not be on wheat, as the spores may seize on many kinds of grasses, and from them in successive development may only attack the crop. Hence the imperative necessity of clearing as far as possible, any growth of weeds and natural grasses at and around the cornfields; a necessity which, to every rational farmer, also for other reasons, is obvious. Maize, millet, English rye-grass, and also French rye-grass (*Arrhenatherium elatius*) are not generally attacked by the rust fungus of wheat. Raised on strips of land these will form an additional safeguard. Stubbles, I might add, should be carefully burnt, and farm-yard manure destined for the wheatfield, be previously well decomposed.

"The summer spores of *Puccinia graminis* may form conspicuous rootlets or mycelium cells in two or three hours. They ripen a harvest of spores in about eight days. If the before mentioned sporidia fall on the cereals or other grasses, upon which the summer and autumn spores delight to luxuriate, they die off speedily, and if plants for which they rely for their subsistence could be completely extirpated, the cycles of development of this particular rust fungus would be disrupted, and immediate contact locally prevented, though still the field may be subject to the influx of fungus spores upon the distance. Unfortunately one single plant of wheat, it has been calculated, may produce several hundred thousand autumnal spores, of which each, early in the next culture season, may multiply into three or four sporidia. The *Puccinia* holds its winter quarter copiously on some of the native grasses.

"Very common is also the *Puccinia straminis*, or the spotted rust in wheat. It forms smaller spots, not so readily flowing together into streaks. The summer spores, or uredo spores, are globular, not oval or pear shaped. The powdery masses of these spores are more red. The autumnal spores do not burst through the epidermal integument, but remain buried beneath, not even swelling the epidermis. In their aggregate they appear finally as minute opaque black spots. The stalk of the spores is shorter than in *Puccinia graminis*. This particular fungus is also a parasite on all cereals except maize and millet. It occurs likewise on many fodder and wild grasses. Its development is still somewhat more rapid than that of *Puccinia graminis*. The plants on which its autumnal spores germinate, as well as its æcidia, are as yet entirely unknown, for neither these autumnal spores germinate on cereals. *Puccinia straminis* is not limited to a few months for producing its summer spores, but germinates the uredo spores throughout the year in continued succession.

"In conclusion it is scarcely necessary to remark that it was well known already to the ancient Greeks and Romans, and has ever since been confirmed, that a very wet season will call extensively forth the latent germs of the rust fungi, but the elements of the disease, and certain other conditions predisposing for its development, must exist to render it widely destructive. The most limited observations will impress us with the fact, that not all soils and positions are affected alike, that not all fields worked and manured differently suffer alike, that not all varieties of our principal cereals are succumbing alike. The climatic influences we cannot hope to bring under our control, but we may patiently trace out through microscopic anatomy and biology, and through chemical science, many of the collateral unfortunate conditions on which, irrespective of a wet season, the real devastations of rust depend, and the measures, which in tiliage, should be adopted to lessen, or perhaps avoid the destruction.

"I have the honor, &c.,
"FRED von MUELLER, M.D., F.R.S.
"The Honorable the Chairman of the Diseases in Cereal Commission of Adelaide."

METEOROLOGICAL OBSERVATIONS.

GOVERNMENT OBSERVATORY, SYDNEY, JUNE, 1868.

General Abstract.

BAROMETER—

Highest Reading	30·555	.. On the 1st.
Lowest Reading	29·677	.. On the 12th
Mean Height	30·066	

(Being 0·047 less than that in the same month on an average of the preceding 9 years.)

WIND—

Greatest pressure	6·5 lbs.	.. On the 29th
Mean Pressure	0·5 lbs.	
Number of Days Calm ..	0	
Prevailing Direction	W.N.W.	

(Prevailing direction during the same month for the preceding nine years ... W.)

TEMPERATURE—

Highest in the shade	68·8	.. On the 28th
Lowest in the Shade	42·1	.. On the 26th
Greatest Range	26·1	.. On the 28th
Highest in the Sun	104·8	.. On the 28th
Lowest on the Grass	35·1	.. On the 26th
Mean Diurnal Range	13·4	
Mean in the Shade	55·8	

(Being 1·4 greater than that of the same month on an average of the preceding 9 years.)

HUMIDITY—

Greatest Amount	98·0	.. On the 5th
Least	44·0	.. On the 29th
Mean	75·8	

(Being 0·8 less than that of the same month on an average of the preceding 9 years.)

RAIN—

Greatest Fall	1·09 inches On the 6th
Number of Days..	9
Total Fall	3·08 inches

(Being 3·63 inches less than that of the same month on an average of the preceding 9 years.)

EVAPORATION—

Total Amount	0·799 inches

OZONE—

Mean Amount	5·0

(Being 0·6 less than that in the same month on an average of the preceding 9 years.)

ELECTRICITY—

Number of Days Lightning	3

CLOUDY SKY—

Mean Amount	3·6
Number of Clear Days ..	9

METEORS—

Number Observed	1

MEMORANDA FOR AUGUST.

1	Sat.	
2	*Sun.*	*Eighth after Trinity.*
3	Mon.	Sydney Causes. Sydney D.C. Grafton Q.S. and D.C.
4	Tu.	
* 5	Wed.	Meeting of the Agricultural Society.
6	Th.	Prince Alfred born, 1844.
7	Fri.	
8	Sat.	
9	*Sun.*	*Ninth after Trinity.*
10	Mon.	Central Criminal Court Sittings. Braidwood Quarter
11	Tu.	Braidwood District Court. [Sessions.
12	Wed.	
13	Th.	
14	Fri.	[Society of N.S.W. issued.
15	Sat.	First Number of the Journal of the Agricultural
16	*Sun.*	*Tenth after Trinity.*
17	Mon.	
18	Tu.	Eclipse of the Sun { Begins ... 12·39·5 p.m. Ends ... 5·54·0 p.m.
19	Wed.	
20	Th.	
* 21	Fri.	Meeting of Exhibition Committee.
22	Sat.	
23	*Sun.*	*Eleventh after Trinity.*
24	Mon.	
* 25	Tu.	Parliament postponed to this date.
26	Wed.	Meeting of Journal and Scientific Committee.
27	Th.	
28	Fri.	Insolvency Appeals.
29	Sat.	
30	*Sun.*	*Twelfth after Trinity.*
31	Mon.	

GARDEN AND FIELD CALENDAR.

Kitchen Garden.—Sow and transplant successional crops of cabbages and cauliflowers; sow crops of celery, onions, leeks, carrots, parsnips, peas, broad beans, spinach, lettuce, radishes, &c.; parsley along edges of the borders, or in beds in rows a foot apart; also red and silver beet; force rhubarb and secale with a slight covering of manure. Dig and trench vacant spaces where the ground is dry. All small salading may be sown.

Flower Garden.—Sow annuals largely; thin out and transplant others of former sowings; continue to plant out herbaceous border plants, such as phlox, petunia, Hetrocentron roseum, antirrhinums, pentstemons, digitalis œuothera, auchusa, &c. Watering may be done in the afternoon. The digging of borders should now be finished. Gesnerias, tydeas, gloxineas, &c., if commencing to die down, should no longer receive water, but be left in soil in a dry situation.

Orchard.—Grafting may still be done. Oranges, lemons, shaddocks, &c., would do well if now planted out, also any other of the tropical and semi-tropical fruits which have been grown in pots, such as diospyros kaki, cherimoya, guavas, hovenia, bananas, &c. All pruning should have been finished by the end of last month.

Field.—This being the best month for potatoes, plant the principal crops without delay; continue ploughing, digging, and trenching where required. Green fodder should now be cut, otherwise there is a risk of injuring the regular crops in November and December. Earth up potatoes as they advance in growth. Prepare ground for sugar planting; if the locality chosen for this purpose possesses alluvial soil, and is free from severe frost, there need be no doubt about the prosperity of the canes.—*Sydney Mail*, August, 1868.

NOTICE TO MEMBERS.

CARDS OF MEMBERSHIP are NOW READY, and will be forwarded enclosed in the monthly number of this JOURNAL, on receipt of a cheque for the subscription for the current year.

The Members who, having paid their subscription, have not yet received their card, will be pleased to notify it to the undersigned, stating the date of payment, and the name of the person to whom they have paid.

JULES JOUBERT,
Secretary Agricultural Society

Sydney, August 15th, 1868.

NOTICE.

THE OFFICES of the Society, 227 George-street, E., are open daily from 9 till noon, and can be used by Members for business appointments.

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