THE SCIENCE CONGRESS.

The Formal Opening of the Meeting— Late Members — New Members — The British Association—Meeting of the Sections—Lunch—Reading of Papers —The Evening Meeting in Queen's Hall—Address by Prof. Brush on American Mineralogy—The Recep-MONTREAL, Aug. 24.

The thirty-first annual Convention of the American Association for the Advancement of Science was opened this morning with all due ceremony in the William Molson Hall, situated in the McGill College Building. After the Standing Committee had completed arrangements at the Windsor Hotel, they proceeded at once to McGill College, where the meeting in general session was at once organized. It was called to order by the retiring President, Professor George J. Brush, of New Haven. The assemblage, composed as it was of prominent scientists from the two hemispheres, was a brilliant one, and on no previous occasion in this city were talent and intellect so largely represented. Among them are men whose names are identified with the scientific progress of the XIX. century, and whose genius is the pride and boast of their respective countries. A notable feature of the Convention is the presence of numerous representatives of the fair sex, who display a laudable interest in the developments and progress of science. Professor Brush, after the meeting came to order, withdrew from the Chair of Honor and Dr. J. W. Dawson, the President-elect, of Montreal, was conducted to the vacant seat and formally installed as President of the Association amid applause. The Right Rev. Bishop Bond then offered up prayer to the Creator of Light and the Giver of Wisdom and called upon Providence to bless the labors of the Association. The chairman of the Local Committee, Dr. T. Sterry Hunt, came forward and delivered a few introductory remarks in regard to the object and working of the Convention. The members of the Association were afterwards formally welcomed to the metropolis of the Dominion by Hon. J. L. Beaudry, Mayor of Montreal, on behalf of its citizens. Another welcome was extended to them by His Honor the Lieut-Governor of Quebec, on behalf of the Province of President Dawson made a most suitable

reply in eloquent terms. The importance of the meeting was fully brought out, as well as the many benefits which would naturally accrue to the cause of science. Canada should not fail to profit by it. The list of papers which would be presented were as varied as they were complete.

THIS EVENING.

Address of the retiring President, Professor George J. Brush, at eight o'clock, in the Queen's Hall, to be followed by a reception of the members of the Association in the Assembly Room, in the same building, by the Local Committee. Members will be admitted to the reception on the presentation of their badges.

THE NAMES.

The registry office at McGill College has been well patronized since the opening. The following are the first names inscribed in the books;-Dr Kowalevsky, Moscow; De Alf and consisted of the election of one Fellow Springer, Cincinnati; Mrs Cora Elsas, Cin- from each section to represent it on the Springer, Cincinnati; Airs Cota Elsas, Cincinnati; Otis F Mason, Whehington; Mrs Martha J Lamb, New York; Mrs H B Mason, Troy; J Francis Williams, Salem, N Y; C B Riley. Washington. D C: Miss Nina posed of three Fellows from each section Riley, Washington, D C; Miss Nina Lafargue, Washington; Miss Alice W Whildon, Concord, Mass; Dr J Baker Edwards, Montreal; J A U Beaudry, Montreal; Major Latour, Montreal; E L Sturtevant, M D, Genova, N Y; James Mills, M A, Guelph, Ont; Mrs Mills; Jno Thorburn, LL D. Ottawa; Thos Kirkland, Toronto; Geo H Cook, New Jersey; Annie Cook, New Jersey; Mrs Cook, New Jersey; Joanna E Cook, New Jersey; WHH Russell, St Louis, Mo; M H Brissette, Montreal; C G Tower, Lexington, Mass; Rev J O Dorsey, Washington; of such section respectively for the next meet-miss Margaret Bowles, Columbia, Tennes. of the Association. see; E B Elliott, Washington; A H Ormsby, Dublin, Ireland; Miss E L Hamlin, New York ; Henry A Ward, Rochester, NY; W F Dudley, Cincinnati, Ohio; Dr Haughton, Dublin; B J Gilbert, Utica, N Y; Mrs C F Wells, New York; Wm Wallace, Ansonia, Conn; W S McKay, Trinity College, Dublin; Jas Hall, Albany, NY; F Ward, Washington; Wrs Ward; Prof C Hertzburg, LL D. Brooklyn; C Gilbert Wheeler, Chicago; Mrs Wheeler; Wm Muir, Montreal; Mrs Muir; CG Caldwell, Ithaca, NY; John Rea, FRS LLD, Kensington, London; Hy E Alvord, Orange County, NY; E E Howell, Rochester, N Y; F W Staebner, Rochester, N Y Thos P Bassnett, Montreal; Mrs Bassnett; Miss Hattie H May, Georgia; Miss H E Solomons, Miss Kate Solomons, Miss A I Solomons. South Carolina: J F Whiteaves, Ot. tawa; N S Townshend, New York; W R Lazenby, Columbus, Ohio; George F Barker, Pa, Mrs and Miss Barker; R G Huling, Mass; Mrs Huling; S R Paine, Mass; P O Williams, New York; S M Hedges, Mass; Mrs and Miss Hedges; D M Beadle, Ont; Mrs and Miss Beadle; Mrs W D Bordman, Mass; W D Bordman; Miss Mary H Hinckley, Mass; Miss Mary Austin, Mass Miss Rose Holingsworth, Mass; Miss Holingsworth; Dr Dawson, Montreal; N H Winchell, Minnesota; E T Cox, San Francisco; Jas Ferrier, jr. Montreal; Mrs Ferrier, W F Ferrier; C A Watson, Mass; Miss Sarah E Hunt, Mass; A L Page, Mass; Mrs Caroline H Dall Washington; A E Foote, Pa; Geo F Brush Conn; Mrs Brush; Chas W Smiley, Washington; W Hudson Stephens, NY, H Williams, NY; J Hagemann, Ohio; J F James, Ohio; Miss E W James, Miss Annie James, A Helghway, Ohio; H C Bolten, Conn; Chas H Rodwell, Paul Mohr, Ohio; Miss Emily Mohr, Dr Jos Szabo, Buda-Pesth, Hungary John Fallon, Massachusetts; H S Jewett, Ohlo; T Sterry Hunt, Montreal; Jas L'Etolle, Ottawa; W W Tracey, Michigan; D P Penallow, New Jersey; Mrs Isabella James, Massachusetts; Miss F B James, Miss Wilson and Miss Carrie Crow, Montreal; T J Burrill, Illinois; Miss Alice E Putnam, Massachusetts; UE Archambault, Montreal; Daniel Draper, New York ; Edward H Dixon, New York Mr and Mrs John M Edwards, Marlboro, Mass; the Rev James and Mrs and Misses Roy, Montreal; Prof Ernest H Cook, Bristol, Eng; Mrs Z D Butcher, Washington; Miss Roberta Freeland, Washington; Jos Hyatt, Standfordville, NY."

The first meeting of the Scientists yesterday was a grand success. All the proceedings were marked by harmony and were followed with general interest.

The Permanent Secretary, Prof. F. W. Putnam, stated that the financial report of the year had been printed. A large number of donations had come in for reprinting volumes of the past proceedings of the Association, among others one from Gen. William Lilly cf \$1,000 towards the expense of reprinting volume 26 of the proceedings, and since he had come to Montreal he had received another contribution of \$150 for the same purpose. Some 160 papers had already been entered for this meeting, and referred/to the various sections.

Dr. Hunt announced that the promenade in the Art Gallery would take place on Mon- J Beal and H F Bassett.

day evening after Prof. Bell's lecture, instead of on Tuesday evening as announced. He expressed regret at the absence of the Hon. Justice Mackay, President of the Art Association.

Prof. Putnam then read the following list of members reported deceased since the last meeting of the Association, viz:—Zachari Allen, Providence, R I; J G Barnard, New York city; Geo L Blackie, Nashville, Teun; Albert H Briggs, Springfield, Mass; Mrs Mary H Campbell, Crawfordshire, Ind; Frederick Collins, Washington, DO; J M Crank, Wolfeville, NO; Charles F Crocker, Lawrence, Mass; E A Dairymple, Baltimore, Md; Caleb G Forslier, New Orleans, La; J Goldsmark, New York; Geo W Hawes, Washington, D C, Thos Potts James, Cambridge, Mass; Lewis H Morgan, Rochester, N Y; Chas H Payne, Saratoga Springs; J Duncan Puinam, Davenport, Iowa; W B Rogers, Boston, Mass; E Root, Amheret, Mass; W Sheppard, Drummondville, P Q David P Smith, Springfield, Mass : C Spenzig, St Lonis, Mass; AR Thompson, New York; WS Faux, Philadelphia; J C Watson, Ann Arbor, Mich; Mrs GO Welch, Lynn, Mass. The General Secretary, Mr W Saunders,

then announced that the Standing Committee recommended for members the gentlemen forming the local Committee and 169 other applicants, who, on motion, were duly elected members of the Association. Among the large number of new members may be noted the following Canadians, viz. :—U E Archambault, Montreal; Rev W D Armstrong, Oitawa; T Foster Bateman, Montreal; P Janvier Ubalde Beaudry, Beauharnois; D W Beadle, St Catharines. Ont: Thos Beull, Lindsay, Ont; JA U Beaudry, G J Bowles, M H Brissette, H L Cargill, Montreal; Charles Carpmael Toronto; Peter C Dempsey, Trenton; John M Denton, A G Fenwick, M D. London, Ont; James Ferrier, Jr, W F Ferrier, Sandford Fleming, Montreal; Jas Fletcher, R G Haliburton, Miss A M Harmon, Ottawa; Henry Hemming, Quebec. Professor Henry Hemming, Quebec. Professor Call Warnecke, Montreal; J F White-eaves, Ottawa; W H Mills, Hamilton; Wm Muir, Louis H Pignold, Montreal; Jos L'Etoile, Quebec; W H Merritt, Toronto; Prof Jas Mills, Guelph; T Wesley Mills, Montreal; Prot T Kirkland, Toronto; Major Latour, Montreal; Prof Geo Lawson, Halifax,

teauguay Basin, PQ. On the suggestion of the President, the English and European scientists attending the meeting were elected members of the Association.

N S; Geo Iles, Montreal; John S Jack, Cha-

President Dawson announced that the annual meeting of the British Science Association opened on the same day as their meeting, and suggested that a message of greeting and congratulation should be cabled to it from the American Association, a suggestion that met with the approval of those present.

The recommendation of the Standing Committee that the hours of meeting each day, except Saturday, should be from 10 a.m. to 1 p.m., and from 2.30 to 5 p.m., was adopted.

The meeting was then declared adjourned, and the Association resolved itself into the various sections which met in their respective apartments for organization. The proceedings were the same in all of these sections, together with the Vice President and Secretary, and which selects the papers to be read and makes other arrangements for the meettings of the sections respectively; the election of the Nominating Committee, composed of one member or Fellow from each section; the election of three members or Fellows from each section, to act with the Vice President and Secretary of that section as a subcommittee to recommend to the Nominating Committee, the Vice President and Secretary

The following were the results in each

section :-A-MATHEMATICS AND ASTRONOMY. Prof W Rodgers, of Cambridge, Mass, occupied the chair in the absence of the Vice-

President, Mr Wm Harkness, of Washington. Secretary-Prof H T Eddy, of Cincinnati, Ohio. For Standing Committee-Prof W

Johnson, Annapolis, Md. For Sectional Committee-Prof G W Hill, Nyack Turnpike, NY; Dr L Waldo, New Haven, Conn, and Prof C A Young, of Princeton (NJ) College.

For the Nominating Committee—Prof W W Payne, Carleton College, Northfield, Mass. For the Sub-Committee on Nominations-

Prof W A Sheiman, Nashville, Tenn; Prof R W Wilson and Prof CH Rockwell. B . — PHYSICS Vice-President-Prof T C Mendenhall, of

Columbus, O. Secretary-Prof Charles S Hastings, of Bal-

timore, Md. For Standing Committee-Prof Blake Davidson College, North Carolina.
For Sectional Committee—Profs Weed, Dolten and Rowland.

For Nominating Committee-Prof Jewell. For Sub-Committee-Prof Hodges, Cambridge, Mass; Prof Murdock, Annapolis, and Prof Brackett, St Johnsbury.

C .- CHEMISTRY. Vice-President-Prof H O Bolton, of Hartford, Conn.

Secretary-Prof Alfred Springer, of Cincinnati. For Standing Committee-Prof S A Lattimore, of Rochester, NY.

For Sectional Committee-Prof George C Caldwell, cf Cornell University.
For Sub-Committee—Prof Alexis Julien, Prof Paul Schweitzer and Prof A B Leeds. For Nominating Committee-Prof Geo C Caldwell.

D. MECHANICAL POIENCE. Vice-President, Prof W P Trowbridge, of New Haven, Conn.

In the absence of Dr. Dudley, Prof Burkitt Webb, of Cornell University, was elected Secretary. The elections for the committee will take

place to-morrow. E. GEOLOGY AND GEOGRAPHY. Vice-President, Prof E T Cox, of San

Francisco. In the absence of Prof C E Dutton, the Secretary, Prof H S Williams, of Ithaca, N Y, was elected to that office. For Standing Committee—Prof G H Cook.

For Sectional Committee-O H Hitchcock, N H Winchell and E T Nelson. For Nominating Committee-J Spencer.

For Sub-Committee-P W. Schaffer, Alexander Winchell and Gen Lilly. F BIOLOGY.

Vice-President-Prof W H Dall, of Washington. In the absence of Dr. C S Minet, Dr W Osler, of Montreal, was elected Secretary. For Standing Committee-Prof A J Cook. For Sectional Committee J A Linter, W Ward. For Sectional Committee-A B Hervey, L Elsberg, R Hitchcock. For Nominating Committee—J D Hyatt. For Sub-Committee--G O Mitchell, T J Burrill, C C Merriman. H. ANTHBOPOLOGY.

In the absence of Prof. Daniel Wilson, Vice-President, Prof. Mason, the Secretary, called the section to order. Secretary-Prof Otis Maon, of Washington.

For Nominating Con ' 'ee-L F Ward,

Vice-President-Prof A h . untle, of Colum-

Fellow for Standing Committee-R H

G. HISTOLOGY AND ROSCOPY.

For Standing Committee_Dr P R Hoy, Racine, Wis. For Sectional Committee—Prof Albert S Bickmore, New York; Lt. Col Mullery, Washington, and Prof N S Townshend, Columbus.

Hale. For Sub Committee-Rev J O Dorsey, Washington, Prof S II Perkins, Burlington, Vt. and Rev J Anderson, Waterbury, Conc.

For Nominating Committee—Hon Horatio

SCOTCH NEWS.

(From the Glasgow Herald, Aug. 15th.)

The Magistrates of Arbroath while continuing to the members of the Salvation Army the privilege of holding open-air meetings in certain public places in the town on timely intimation being made to the police, have rejused the request which their "captain" made last week, that they should be allowed to resume marching and singing through the streets.

We regret to learn that Lord Valhousie is not in the emjoyment of that robust health his friends could wish, and instead of returning to Forfarshire on the rising of Parliament, as intended, his Lordship has been recommended by his medical advisers to take a course of the Homburg waters, in the hope that these may be the to coural against a filler. restore him to convalescence.—Dundee Advertiser.

In regard to the rumor of a visit by the Queen to the Duke of Buccleuch at Drumlanrig Castle, Dumfriesshire, about the 23rd inst., it appears that some ten days ago instructions were received at the castle from the Duke for the preparation and decoration of certain apartments in expectation of a private visit from Her Majesty about the date mentioned. In compliance with these instructions, workmen have been employed for some days on the necessary work. work.

work.

At Edinburgh Police Court on Monday—
Balle Colston presiding—a young lad named
Bernard Crosscary was sentenced to pay a fine
of £1, with the option of 20 days' imprisonment,
for assaulting a constable in the cells of the
police-office on Saturday night. A similar sentence was passed upon another lad named Owen
who had assaulted the same constable while he
was apprehending Crosscary in Cowgate. Other
two lads named Rennia and Alexander, for
attempting to wescue Owen, were each sentenced
to 30 days' imprisonment, Mr. Linton remarking that they were two of a large crowd who
collected and abused the policemen. Other two
young lads, who had prolonged the disturbance
into the Sunday morning, were each sent to
prison for 15 days.

prison for 15 days.

On Saturday morning about ten o'clock a serious accident occurred to party of excursionists employed in the Hurlet and Capsie Alum Company. The company, numbering thirty, were conveyed per 'bus from Campsie via Drymen, and when descending Haldane Brae, near to Balloch, the vehicle upset. A man named Patrick Gormley sustained severe laceration and fracture of the left foot, the injuries being so serious that Dr. M'Lelland of Alexandtia ordered his removal to the Glasgow Informary. Other four of the party sustained severe bruises about the legs and face, while Craig, the driver, got cut about the face. The cause of the accident is considered to have been the excessive top weight, coupled with the fact of the horses being too suddenly reined in at the toil bar, which is badly situated for this purpose. badly situated for this purpose.

School. There were 105 competitors, as against 137 last year.

We recently reported fully in our columns an interlocutor given by Sheriff Lees, where, in decerating against a defender in a cise of this nature for £69, he held that in virtue of an Act of Parliament passed in the reign of Queen Ann, this sum properly belonged to the poor of the parlish wherein the betting transaction had taken place. The parlish was that of Catheart, and to the Local Authority the Sheriff Clerk transmitted a copy of the Sheriff's interlocutor, and at their meeting on Tuesday the Inspector, Mr. Grozier, admitted the same to the Board. In course of discussion Capt. Stewart moved that the Board thank the Sheriff for his attention, and resolve that no action be taken. Mr. Mayberry could not approve of the Sheriff's interlocutor being dealt with in so summary a manner, and in moving that it be remitted to the Law and Finance Committee for their consideration and to report, said there were two points to be specially kept before the Board in disposing of this matter—the first being the likelihood of the Board establishing their rights to this sum of money, and secondly, in the event of their succeeding, their prospect in being able to recover the money. He was inclined to think that the likelihood of the parish getting the benefit of the sum in question was just as remote as the Act of Parliament on which the Sheriff had founded the Board's right thereunto. Mr. Miack having seconded Mr. Mayberry's proposal, the matter was remitted accordingly.

THE POISON OF TOBACCO SMOKE.

A series of experiments has been recently conducted by Herr Clasling, of Bremen, with the view of ascertaining the proportions of nicotine and other poisonous substances in the smoke of cigars. He specifies as strongly polsonous constituents carbonic exde, sulphuretted hydrogen, picoline bases, and nicotine. The first three occur, however, in such small proportions and their volatility is so great that their share in the action of tobacco smoke on the system may be neglected. The picoline bases, too, are present in comparatively small quantity, so that the poisonous character of the smoke may be al-

most exclusively attributed to the large proportion of nicotine present. Only a part of the nicotive in a cigar is destroyed by the process of smoking, and a relatively large portion passes off with the smoke. The proportion of alcotine in the smoke depends, of course, essentially on the kind of tobacco; but the relative amount of nicotine which passes from a cigar into smoke depends chiefly on how far the cigar has been smoked, as the nicotine contents of the unsmoked part of a cigar is in inverse ratio to the size of this part i.e. more nicotine the shorter the part. Evidently, in a burning cigar, the slowly advancing zone of glow drives before it the distillable matters, so that in the yet unburnt portion a constant accumulation of these takes place. It would appear that in the case of eigars that are poor n nicotine more of this substance relatively passes into smoke than in the case of cigars with much nicotine; also that nicotine, notwithstanding its high boiling point, has remarkable volatility .- London Times .

Last year Great Britain had 13,727 locomotives to 18,175 miles of line, or one engine to 1.3 miles. In this country there were 20,116 locomotives to 104,300 miles of line, or one engine to 5.1 miles.

PAPERS READ BEFORE THE AGRICUL-TURAL CONGRESS AT ITS MEETING IN MONTREAL.

TIMOTHY AND ITS STAGES OF GROWTH.

Major H. G. ALVORD, Manager of the

Houghton Experimental Farm, read a paper

by Prof. W. H. Jordan on the "Non-albume-nold nitrogen of Timothy at different stages of growth." The fact is well known that the | interesting question to determine if the off. albumenoid compound of our various cattle spring of birds made insusceptible by vacfoods are the only vegetable substances of which it can be affirmed with certainty that of immunity. Here, again, our experiments they can be converted into animal albumenoids such as the albumen and fibrine of lean meat and the casein in milk. He then discussed the conditions affecting the amounts of these bodies existing in any species of fodder. Until recently chemists assumed that all the nitrogen in plants was trol the contagious fevers. And although it combined in the albumencid form, but it is now known that it exists in other forms in the various materials fed to farm animals. These compounds, however, mostly take no part in animal nutrition, while the effect of the others is so uncertain that it seems improbable that they appropriate any considerable quantity of nitrogen. The opinion has become quite general that the percentage of total nitrogen existing in the non-albumenoid torm become smaller as the plant approaches maturity, and this idea is certainly in accordance with the views entertained concerning the office of amides and related bodies in vegetable nutrition. The results of earlier inves tigation in the amides in grasses, especially those of Kellner, also favored the idea that when active growth ceases, and the transportation of albumenoid material ro longer becomes a necessity, the amides disappear somewhat from the plant. Different results were obtained from different plants. The examination by American analysis of twentythree samples of timothy cut at different periods of growth gave results that made it seem doubtful if the amid a nitrogen diminishes meterially in this grass after the period of bloom. The average of non-albumenoid nitrogen in four samples cut previous to or in early bloom is 26 per cent of the total nitrogen, while for four samples in or past full bloom, the average is 25 per cent, a difference that is not material and which does not indicate a diminishing of the amide nitrogen at the later period of growth. The results of the analysis of ten samples at the Pennsylvania State College Laboratory, held for the object of determining the influence of fertility and of the stage of development upon the amide nitrogen, showed that increased fertility had the effect of causing more of the nitrogen to exist in the non-albumencid form and that maturity or the approach of ripeness did not diminish materially the non-albumenoid nitrogen.

VACCINATION EXPERIMENTS.

The following paper, by Mr. D. E. Salmon, D.V.M., veterinarian to the U.S. Department of Agriculture, on the subject of vaccination, was read by the President, as fol-

"Various observations convinced me that the effects of a virus depend largely upon the dose introduced, and this encouraged me to investigate the precise effects which follow the inoculation of fowls with different quantitles of cholera virus. To accomplish this it was necessary to produce a virus of a standard strength before any definite results could be obtained, and the problem too suddenly reined in at the toil bar, which is badly situated for this purpose.

The result of the second annual competition for the Hamahfield bursaries, open to the three counties of Dumfries, Kirkcudbright and Wigston, has been made known. Last year the result was chiefly remarkable for the larke number of bursaries (eight) that fell to Lange number of bursaries, while all its candidates received hoporable mention. The following is the prize list: College bursary of £15, tenable for three years. John H. Ross Gerson, Stranraer Academy, 20hn H. Ross Gerson, Stranraer Academy, 2chool bursaries (live of £10 cach), tenable for three years. David A. Carruthers, Maffat Academy, 2chool bursaries (live of £10 cach), tenable tor three years—1st. Samuel J R Sibbald, Morton Public School and Wallace Academy; 2d. Thomas W. Greve, Langholm Public School and Stranraer Academy; 4th, William Rae, Langholm Public School, he gets a double bursary. The fifth on the list was Jane Irving, Laugholm Public School. There were 105 competitors, as against 137 last year.

We recently reported fully in our columns an interlocutor given by Sheriff Lees, where, in definition of a dilution of 1 to 10,000, five or six would die. Another one or two would contract a severe form of the disease and recover; but by far the greater number remained to the prize of the edition of 1 to 10,000, five or six would die. Another one or two would contract a severe form of the disease and recover; but by far the greater number remained to produce the edition of 1 to 10,000, five or six would die. Another one or two would contract a severe form of the disease or ever under any circumstances, when they have contracted the effection there was a great temptation to conclude that the disease produced by diluted vires was of substantially the same intensity as that produced b was solved by cultivating the microphytes class of investigations, but it would nevertheless have been an egregious mistake. For if the fowls which showed no symptoms of disease in the experiment are inoculated with the strongest virus, nearly all of them will prove to be completely unsusceptible. Were these birds pneusceptible when purchased as we know many are, and thus able to resist the virus in the first experiment, or did they acquire this unsusceptibility during the experiment?

> A microscopic examination of the virus discloses the fact that every drop contains at least a million and a half, and possibly many more, of the peculiar microsocci of this disease; and consequently each drop of our dilution of 1 to 10,000 must contain 150, and our first supposition that every drop did not contain the germs must be wrong. If, now, we make daily examinations of the appearances at the point of inoculation we will see that with the fowls inoculated with the dilution of 1 to 10,000, although the puncture may heal as when no virus is used and present a normal appearance for three or four days or a week, at the end of this period there local is evidence of a slight flammation—the blood vessels are distended and the point is swollen. This irritation does not disappear until about three weeks, counting from the inoculation, has elanged except in those cases where the disease is contracted. If we use a dilution of 1 to 100, 000 none of our fowls die, and a much smaller proportion contract the local lesion which I have referred to, and we may easily show that those which contract it acquired immunity from the effects of subsequent inoculations with ordinary quantities of virus while those which do not contract it are as susceptible as before. It is evident, therefore, that inoculations with sufficiently diluted virus is followed by an germs and that this is sufficient to produce strong, the local irritation may appear, but in a few days the germs penetrate the entire a certain degree of immunity has been acquired and the bir i generally recovers. As the susceptibility of different individuals varies remarkably, our first preventive inoculation must be with an extremely diluted virus (1 to 75,000); those individuals which prove insusceptible to this are then inoculat. d with a stronger virus, and so on, until all proof of the success of the operation.

sand birds. I have made a number of experiments during the past year to determine if an immunity might not be granted by hypodermic injections of considerable quantitles of devitalized virus—or, in other words, of the chemical products of the growth of the pathogenic germs, as has been believed possible by good authorities, but in no case has any success been attained. It was also an clustion might not inherit a certain degree have shown that no degree of immunity is

conferred. Vaccination with an attenuated virus, or inneculated with a diluted virus, which practically produces the same effects, are then our great hope for the future in our efforts to conwill require an extensive experience to demonstrate which of the methods noticed is, all things considered, the most satisfactory, it cannot be doubted that either of them constitutes a most important addition to our resources. And these discoveries have resulted from patient scientific research, from experiments upon living animals, and in no other way could we have learned of these great laws of nature upon which they de-

Dr. Townsend and Mr. E. A. Barnard then gave some of the results of their own experience in the subject matter of the treatise.

GERMINATION OF SEED. A paper on the germination of seeds, by J. J. Thomas, Associate Editor of the Country Gentleman, was then read by the President. The paper was a statement of the writer, with the practical deductions therefrom. These went to corroborate the well known fact that seeds require for germination a certain amount of moisture, warmth and air, but not light. Every farmer and gardener is familiar with the fact that no seeds can grow in a soil, no matter how perfect in other respects, if destitute of moisture, or in a season of extraordinary drought. Cultivators know equally well that a certain amount of warmth is required, but a complete series of experiment with different seeds to determine the temperatures at which growth can begin would be useful in practice, and might often prevent failure. The experi ments made in the present case were principally for the purpose of throwing additional light on the third well-known requirement for germinations, viz, the presence of air. Buried beyond a certain depth in compacted air, all seeds will remain dormant for an indefinite length of time. Nurserymen sometimes employ this dormant influence to hold a surplus of peach stones or other large seeds from growing till wanted by burying a foot or two in closely trodden soil, and the small seeds of weeds remain for years several inches beneath the surface until brought up to the action of the air by ploughing. Their unsuspected presence in this condition had led to the absurd notion of the spontaneous germination of weeds, or of the equally erroneous one of the transmutation of unlike species. The size of the seeds should control in a great measure the denth to which they should be covered with soil. The common rule that the depth should not much exceed five times the diameter of the seed is a good one, and in accordance with this rule the grains of corn which are half an inch in diameter may be planted two and a half inches deep or any less depth which shall give them sufficient moisture. Clover seed, on the other hand, the diameter of which is hardly the twelfth of an inch, should not be buried more than half an inch for its ready go minution and growth, From personal experiments it was found that corn planted at depths ranging between half an irch and six inches came up in from six to fifteen days. With oats very nearly the same results were obtained. Experiments with barley gave results quite similar to those of wheat, but no plants found

an inch, but the experiment was not repeated often enough to establish a general rule. The number of days required for the various plants to reach the surface would, of course, vary considerably with the temperature of the season and the warmth of the

reaching the surface and in forming this new

soil. The practical deductions to be made from these experiments teach the importance of adapting the depth in sowing the different crops to the size of the seed; that while the corn may be buried with propriety at a depth of two inches, especially in light and porous soils, timothy seed should not have a covering of over half an inch, nor clover of more than an inch. They also suggest indirectly the importance of a finely pulverized soil for favoring germination; that grass seed should not be buried by using a common cross harrow, but a fine brush or roller, and the advantages of a top dressing of fine manure to retain moisture over minute planted seed. They also explain how harvest seedsmen may be unjustly censured and charged with selling bad seed, simply because the farmer or gardener who planted it placed it at a depth from which the young and struggling plants find it impossible to reach air and light.

A NEW PRINCIPLE. The principle upon which Putnam's Painless Corn Extractor acts is entirely new. It does not sink deep into the flesh, thereby proentirely local multiplication of the disease ducing screness, but acts directly upon the external covering of the corn, separates it from insusceptibility. In case the virus is too the under layer, removes the direct pressure from the part, and at once effects a radical cure, without any pain or discomfort. Let body and the local lesion is either greatly those who are suffering from corns, yet skepdiminished or it entirely disappears. It the | tical of treatment, try it, and by the completelocal irritation has been apparent for a week ness of the cure they will be ready to recom-or more before the general reflection occurs mend Putnam's Painless Corn Extractor to others .- N. C. Polson & Co., proprietors, Kingston, Ont.

SERIOUS RIOTS IN INDIA.

CALCUTTA, Aug. 28 .- Fearful rioting beween Hindoos and Mahommedans occurred at Salem, in Madras, and 150 Hindoos and three Mahommedans were arrested. An eye withave contracted the local lesion, which is a ness saw the disemboweled body of a Mahommedan infant lying on the ground with The advantages of this method are that a its arms torn off. Headless corpses of Mavirus of a definite strength may be produced hommedans, men and women, were lying on in any quantity within a few minuter, and every side, Mahommedan houses were burned that the individuals which have contracted and the principal Mosque almost razed. and recovered from the local lesion are insus- Dead pigs were thrown into wells with ceptible to the most active virus, while the corpses of Mahommedan children. Troops economy of the material is such that a single are still patrolling the streets. The Mahomdrop of the strong virus is sufficient for the medians of a small minority of the popuinoculation of ten, twenty, or even fift mon latten.

COMMENTS AND CLIPPINGS

Special precautions are said to be taken now to protect the Princess Loidsengainst assassins. Fractions of a penny have never been paid by the Bank of England in distributing the dividends on the national debt, and the accumulations of the unpaid fractions amount to £143,00.

Paster Love, of the United Presbyterian Church at Harrisville, Ohio, was chloroformed and robbed of \$5,000 by his two sons, whom he had reared to the ages of 12 and 14 with exceeding religious riger.

Mr. Jenkiuson, who succeeded Col. Blackenbury, with a salary of \$7,500 a year, as head of the Irish Crimina! Investigation Department, d slinguished himself greatly when very young at the outbreak of the Indian mutiny.

It is attributed to Sir Garnet Wolsley that he always fixes a date for departure, for the end of war, and for his return to London to dine with a few agreeable friends. Sept. 15 is the day on which he proposes to exterminate Arabi.

A tablet is to be erected in Westminster Abbey to the memory of an American, the late Col. Chester, a native of Norwich, Conn., but for many years resident in England. This is in recognition of his service as editor of the Westminster Abbey Register.

In Spain an old custom among the rural people is never to eat fruit out of doors without planting the seed. The roads are lined with trees, whose fruit is free to all. An ol proverb says: "The man has not lived in valu who plants a good tree in the right place."

The Duke of Orleans, eldest son of the Count of Park, took the prize or Latin composition at the annual competition of the Parks colleges. His father, amid the plaudits of a large gather, ing, entheraced him and placed on his head the laurel wreath presented to prize winners. The Duke is thirteen. Cincinnati is to have a Shakespeare festival next spring. A fund of \$50,000 has been raised to meet a possible deficiency in the cash account, and John McCullough, Lawrence Barrett, Thomas Keene, and Mary Anderson are to act together in "Julius Cosar," "Othello," "King John," and "Romeo and Juliet."

Join," and "Romeo and Juliet."

The reason why the thermometer does not always accord with the comparative discomfort of hot weather is owing to variation of moisture in the air. While the human body is all the time giving oif perspiration, either sensible or ins-nsible, this evaporation will go on more rapidly when the air contains but little moisture than when it contains a great deal. Evaporation is cooling when it has no obstruction; but when it is obstructed by moist air, the reverse effect is produced, and a temperature of 80 degrees is quite as oppressive as that of 90 when the air is dry.

dry.

Dust mixed with air is found to be, under certain conditions, a dangerous explosive. Thus, if a large log of wood were ignited, it might be a week before it would be entirely consumed; split up into cord wood, and piled up loosely, it would, perhaps, burn in less than an hour; cut into shavings and allow a strong wind to throw them into the air—or in any way keep the chips comparatively well separated from each other—and the log would perhaps be consumed in two or three minutes; but if ground up into fine dust or powder, and blown in such a manner that each particle is surrounded by air, it would burn in less than a second.

The Tithing House's still in active use in Salt.

The Tithing House s still in active u.e in Salt Lake City, and through it half a million a year is collected by the Morman officials. This comes mostly from the poor, according to a correspondent of the St. Louis Globe Democrat, and nobody knows to what use it is put, although many had their surmises when they found that lirigham Young, although not entitled to any salary, died worth several millions. The rich evade their tithes in a variety of ways; the poor must pay them, or they are subjected to trouble and annoyance. When they have paid their tithes they are not out of debt to the Church. They must contribute when called upon to the erection of new buildings, or do anything else the presthood may demand. "I etter starve your bo'y than your soul," and away so the last bushed of corn, or the last sheep, or the last steer.

Justice North is becoming noted among Eng-

away po the last bushet of corn, or the last sheep, or the last steer.

Justice North is becoming noted among English Judges by his peculiar ways of asserting the dignity of the Court. He lately asionished a lawyer in the Crown Court at Manchester, who was reading a paper, by saying that he must leave the court if ne wished to indulge in the newspaper. The man put away his paper at once. Then the Judge cried out, "Leave the court!" The man departed accordingly. This inetdent reminds the London Journals of the Vice-Chancellor's remarkable order to a bald man, whose misfortune interfered with the official's comfort. The sunlight reflected so vividly from the polished surface of the offender's head that the Vice-Chancellor's eyes were afflicted, and the man was forced to retire. Severity with judgment was illustrated in the direction to remove a barking dog from the court room. The wrong animal was selzed by the officer, and the magistrate exclaimed: "No, not that dog. I have been watching him all day, and I will say that a better-behaved little dog never entered a court of justice."

Canon Wilherforce, in a letter to the Arch-blabon of Canterdary, bag drawn attention to

Canon Wilherforce, in a letter to the Arch-bishop of Canterbury, has drawn attention to what he characterizes as a grievous seandal in connection with the management of the their way to the surface in a strong soil from blshop of Canterbury, has drawn attention to what he characterizes as a grevous scandal in connection with the management of the familiary of the Established Church in England. He says it is an absurdity for Archbishops and Bishops "to give temperance lectures and address public meetings on the sin and misery caused by intemperance, arging their hearers to avoid the public house, while in their corporate capacity they are perhaps the largest owners of public house, while in their corporate capacity they are perhaps the largest owners of public house property in the country," and "certainly own more than any brewer's firm in the kingdom." The Bishop of London, when he leaves his house in St. James's square and rides to his palace at Fulham, passes on his road more than 100 barrooms, built on land belonging to the Church. The "Royal Oak," at Notting Hill, is on the land of the Bishop of London, and the "Hero of Waterloo," near the terminus of the Southwestern Railway, on that of the Archbishop of Canterbury. The returns of the former are not less than \$50,400 a year, or more than the maintenance of all the places of worship of every denomination, schools, and the police force of the district within the diameter of a mile, while the "Hero of Waterloo" pays a rental quite as large. It is asserted that when the lease of a public house in possession of the Church Commissioners expires, it is valued by a protessional to know if its rental will bear an increase, and that the Church will also grant ground leases for the erection of public houses. The Church of England, as a whole, is the largest owner in the kingdom, and so, naturally in the absence of any principle to the contrary, the largest owner of public houses. The cerum of the accommodation of traveller, and when beer was regarded as, not merely an innocent, but a necessary beverage. a depth of six inches. But they came up freely when covered with coarse sand at even greater depths. All the larger culmiforous plants, such as corn, oats and wheat, if growing from a great depth sent out a new set of roots near the surface and these new roots afterwards became the whole support, or nearly so, the lower ones which started in the soil not increasing or extending. A principal reason why deep planting was less snecessful than at more moderate depths appeared to be the loss of time in slowly set of roots. In some cases plants of the smaller grain crops which came from a depth of from one to two inches, appeared to be rather stronger than those planted only half

IRISH CATHOLIC NEWS. The Very Rev Father Jackman, O S F, has

been appointed Provincial of the Franciscan Order in Ireland, on the expiration of the period of office of the Very Rev Father Hill. At a meeting of the Chapter of the Franciscan Order, the following changes were decided upon :- The Very L L Cassidy, O S F, Prior, Drogheds, is appointed Definitor, and is removed to Dublin, the Rev Father Hyland, OSF, taking his place in Drogheda; the Very Rev E B Fitzmaurice, O S F, Drogheds, is appointed Principal of the Franciscan Novitlate in Ennis, County Clare.

His Crace the Most Rev. Dr. M'Evilly, Archbishop of Tuam, attended by the clergy of the Westport Deanery, concluded an edifying confirmation tour in the Island of Achill, last week. Nowhere is the manifest success of the labors of Fathers Flanly and Biggins more clearly shown than in the almost total collapse of the once flourishing Irish Church Mission of Achill. The Archbishop complimented the people of Achill on their previous fidelity to the Church, notwithstanding the seductions that Souperism offered to men whose only legacy was poverty, and whose riches consisted in the wealth of their pure faith. The total abstinence pledge was administered by him to the children on whom the graces of Confirmation had just descended. Newport was next the scene of His Grace's labors. He paid a graceful compliment to the zealous priests, Father Prendergast and Father M'Hale. The little town of Louisburg wore its gayest attire on the occasion of the visit of its distinguished son, the Archbishop, who was accompanied by the Very Rev. P Kilkenny, President of St. Jarlath's College.

Mr. John Hamilton, son of Senator Hamilton, of Kingston, who had charge of a private banking association at Brandon, Man, has committed suicide, it is supposed by shoot-next