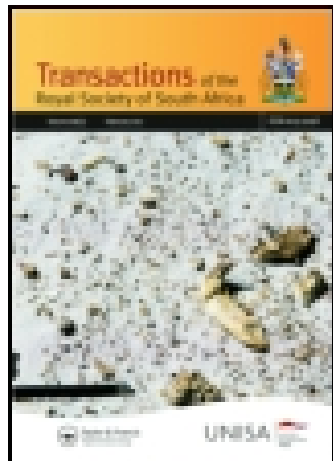


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Transactions of the Royal Society of South Africa

Publication details, including instructions for authors and subscription information:

<http://www.tandfonline.com/loi/ttrs20>

MINUTES OF PROCEEDINGS

Wm. A. Jolly

Published online: 01 Apr 2010.

To cite this article: Wm. A. Jolly (1919) MINUTES OF PROCEEDINGS, Transactions of the Royal Society of South Africa, 8:1, i-xiv, DOI: [10.1080/00359191909519969](https://doi.org/10.1080/00359191909519969)

To link to this article: <http://dx.doi.org/10.1080/00359191909519969>

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MINUTES OF PROCEEDINGS
OF THE
ROYAL SOCIETY OF SOUTH AFRICA.

REPORT OF THE HON. GENERAL SECRETARY FOR THE YEAR ENDING
DECEMBER 31, 1916.

Seven Ordinary Meetings, the Annual and the Anniversary Meetings, were held during the year, and the following papers were read :

"Note on Pfaffians Connected with the Difference-product," by Sir THOMAS MUIR.

"Note on the so-called Vahlen Relations between the Minors of a Matrix," by Sir THOMAS MUIR.

"On the Development of the Perturbative Function in the Theory of Planetary Motion," by R. T. A. INNES.

"A Contribution to our Knowledge of the National Game of Skill of Africa," by P. A. WAGNER.

"A Survey of the Scorpion Fauna of South Africa," by JOHN HEWITT.

"Note on a Petiole and Portion of the Lamina of *Cotyledon orbiculata* Functioning as a Stem," by S. SCHÖNLAND.

"Oecological Notes on the District of Manubie, Transkei," by W. T. SAXTON.

"Note on the Radiations emitted by Degenerating Tissues and Note on the Ionisation produced by Degenerating Nerve-Muscle Preparations," by J. STEPH. VAN DER LINGEN.

"Note on Protective Resemblance in Post-Larval Stages of some South African Fishes," by J. D. F. GILCHRIST.

"On the Morphology of the Female Flower of *Gnetum*," by H. H. W. PEARSON.

"Heart Rot of *Ptaeroxylon utile* (Sneezeewood) caused by *Fomes rimosus* (Berk)," by PAUL A. VAN DER BIJL.

"On *Pelodrilus Africanus*, a new Haplotaxid from South Africa," by E. J. GODDARD.

"Note on *Polysaccum crassipes*, a Common Fungus in Eucalyptus Plantations around Pretoria," by PAUL A. VAN DER BIJL.

"The Granite of the Schapenberg, Somerset West," by A. R. E. WALKER.

"On the Radial Lines in Röntgen Interference Patterns," by J. STEPH. VAN DER LINGEN.

"Some Observations on *Ozobranchus branchiatus*," by E. J. GODDARD.

"On some Stages in the Life History of Gnetum," by H. H. W. PEARSON and MARY R. H. THOMSON.

"The Theory of Automatic Regulators," by H. BOHLE.

"Variation in the Mylabridae Illustrating a New Theory of Evolution based on Mendelism," by T. F. DREYER.

"African Myxomycetes," by Miss A. V. DUTHIE.

"On Hybrid Forms in the Genus *Satyrium*, with Descriptions of Two New Forms," by Miss A. V. DUTHIE.

"Ionisation of Gases and the Absorption of Röntgen Rays," by LEWIS SIMONS.

"Note on the Occurrence of Daphnin in the Arthrosolen," by M. RINDL.

The Society has awarded, on the recommendation of the General Committee for Grants-in-Aid of Research, the following grant: £50 to Mr. J. S. VAN DER LINGEN, for continuation in research work on Radiology generally.

During the past year further progress has been made with the cataloguing of the Society's Library. The publications of the undermentioned Societies have been examined and catalogued, and communications are proceeding with the Societies regarding filling up of blanks.

Royal Society of New South Wales.

Linnean Society of New South Wales.

Australian Museum, Sydney.

Royal Society of South Australia.

Royal Geographical Society of Australasia.

Adelaide Observatory.

University of Sydney.

Melbourne Observatory.

Royal Society of Victoria.

Victoria Public Library, Museum and National Gallery.

National Museum, Melbourne.

Tasmania, Department of Mines.

Royal Zoological Society of New South Wales.

New Zealand Institute.

Royal Society of Tasmania.

Queensland Museum.

Royal Society of Queensland.

Australasian Association for the Advancement of Science.

Vol. V, Parts 3, 4 and 5, of the Society's Transactions have been issued during the year. Other parts which would have been issued in 1916 have been unavoidably delayed owing to the unusual conditions prevailing at present.

The number of Honorary Fellows is 3; Fellows, 50; Members, 168. Dr. Percy A. Wagner, Dr. Ing., B.Sc., has been elected a Fellow in 1916.

The Society regrets to have to record the death, since the 1915 Anniversary Meeting, of Mr. R. Trimen, Honorary Fellow, Professor H. H. W. Pearson, Fellow, and Mr. H. A. Fry and Dr. C. McGowan Kitching, Members.

WM. A. JOLLY,

Hon. General Secretary.

ANNIVERSARY MEETING.

The Anniversary Meeting of the Society was held on Wednesday, March 21st, 1917, at 8.15 p.m., in the Board Room of the South African Association, Church Square, Capetown.

The President, Dr. L. PÉRINGUEY, was in the Chair.

The Report of the Hon. General Secretary was submitted and adopted.

The Report of the Hon. Treasurer was submitted and adopted.

The following were elected Members of Council for the year 1917:

Dr. A. JASPER ANDERSON. Dr. W. A. JOLLY.

Dr. W. A. CALDECOTT. Mr. C. P. LOUNSBURY.

Dr. G. S. CORSTORPHINE. Dr. L. PÉRINGUEY.

Dr. L. CRAWFORD. Dr. W. F. PURCELL.

Dr. A. L. DU TOIT. Dr. S. SCHÖNLAND.

Mr. S. S. HOUGH. Dr. B. ST. J. VAN DER RIET.

Dr. L. PÉRINGUEY was elected President.

Dr. L. CRAWFORD, Hon. Treasurer.

Dr. W. A. JOLLY, Hon. General Secretary.

The President announced his nomination, as Vice-Presidents, of Dr. A. Jasper Anderson and Dr. G. S. Corstorphine.

TREASURER'S ACCOUNT FOR THE YEAR ENDING DECEMBER 31, 1916.

RECEIPTS.		£	s.	d.	EXPENDITURE.		£	s.	d.
To Balance in Bank as per Pass Book...	...	116	8	3	By Publications ...	...	486	11	0
" Subscriptions received in 1916:					" Landing Charges, etc. ...	...	11	18	3
for 1914, 2 Fellows at £2, 2 Country					" Research Grants and Expenses ...	...	78	18	9
Members at £1 ...		6	0	0	" Cost of Stamps on retaining £800 for one year on	...	0	4	0
for 1915, 4 Fellows at £2, 3 Town Members					" Fixed Deposit at Standard Bank ...	...		
at £2, 11 Country Members at £1,					" Payments in connection with Grant to Professor	...			
balance 1 Country Member 19s., balance					Pearson for Botanical Exploration in Namaqualand,	...	44	6	3
1 Country Member 16s. ...		26	15	0	closing account ...	...		
for 1916, 41 Fellows at £2, balance 1					" Compilation for International Scientific Catalogue of	...			
Fellow £1 16s., 42 Town Members at					Papers ...	...	25	0	0
£2, balance 1 Town Member £1 18s.,					" Clerical Assistance and Work in Library ...	...	55	0	0
81 Country Members at £1, balance					" Local Printing and Stationery ...	...	33	6	10
1 Country Member 19s., balance 1					" Postages and Petties ...	...	48	16	3
Country Member 18s., £1 extra sub-					" Bank Charges for Commissions, Ledger Fees, Cheque	...			
scription from Country Member elected					Book, less Commissions paid by Members ...	...	1	16	2
Fellow ...		253	11	0	" Hire of Room for Meetings and Caretaker, 1916	...	5	15	6
for 1917, 1 Country Member at £1, part					" Cash, Entrance Fees received 1916, put into Post Office	...			
subscriptions 3s. ...		1	3	0	Savings Bank ...	...	10	0	0
Entrance Fees received, 10 new Members		287	9	0	" Balance in Bank as per Pass Book	...	217	12	9
" Sale of Publications to Government ...		100	0	0					
" Sales of Publications otherwise ...		38	12	6					
" Sales of extra Reprints of Papers ...		34	16	0					
" Government Grant, 1915-6 ...		50	0	0					
" Government Grant, 1916-7 ...		50	0	0					
" Interest on Fixed Deposit in Standard									
Bank, 1915-16 ...		32	0	0					
" Cash drawn from Post Office Savings Bank		300	0	0					
		£1019	5	9			£1019	5	9

Minutes of Proceedings.

v

ASSETS AND LIABILITIES AS AT DECEMBER 31, 1916.

ASSETS.		LIABILITIES.	
	£ s. d.		£ s. d.
Money at Standard Bank on Fixed Deposit at 4 per cent.	800 0 0	Subscriptions, whole or in part, received for 1917	1 3 0
Money in Post Office Savings Bank, Life Subscriptions and Entrance Fees	144 0 0	Balance Research Grant voted in 1914 to Miss M. Wilman	25 0 0
Money in Post Office Savings Bank, at call, with interest to March 31st, 1916	131 8 6	Earmarked for Expense of Publishing, as a part of the 'Transactions', a reproduction of a Bushman Painting (Council Minutes, May 12, 1915) a sum not exceeding	350 0 0
Balance in Standard Bank, as per Pass Book	217 12 9	Balance from 1912 Conversazione carried forward towards the expenses of future Conversazione in Capetown	7 4 0
Petty Cash in hands of Hon. Secretary	1 15 3		
Arrears of Subscriptions, as in Statement for 1915, due at beginning of 1916, £55 15s., less £32 15s. paid in year and £10 struck off as irrecoverable	13 0 0		
Arrears of 1916 Subscriptions	63 0 0		
Money due for Sale of Publications	2 16 10		
Money due for Sale of Extra Reprints of Papers	4 5 0		
	<u>£1377 18 4</u>		<u>£383 7 0</u>

LAWRENCE CRAWFORD, Hon. Treasurer.

We have audited the accounts and checked the vouchers of the Royal Society of South Africa for the year 1916, and find the same, to the best of our belief, correct.

February 12, 1917.

S. S. HOUGH.
ALEXANDER BROWN.

NOTE.—Owing to the abnormal delay in sending out the 'Transactions' of the Society, an account falls to be paid in 1917 for the printing of Vol. V, Pt. 6, and Vol. VI, Pt. 1, ordered in 1916. This account is roughly estimated to be £550.

ORDINARY MEETING.

An Ordinary Meeting was held on March 21st, after the Anniversary Meeting.

The PRESIDENT was in the Chair.

The Minutes of the Ordinary Meeting held on October 18th, 1916, were confirmed.

Dr. E. T. STEGMANN, B.A., D.Sc., and Mr. S. H. SCAIFE were nominated for election as members.

COMMUNICATIONS:

"Note on Palmstrøm's Generalisation of Lamé's Equation," by Sir THOMAS MUIR.

"*Mestoma antarcticum* from Bloemfontein (sp. nov.)," by T. F. DREYER.

This paper contains a description of a very slender worm, tapering towards both ends, and, when fully extended, about 7 mm. in length and about 1 mm. broad, found in a small pond on clay soil near Bloemfontein. The specimen shows an almost negligible amount of variation from *M. mutabile* from Tierra del Fuego; whether this similarity is due to parallel evolution or to a former land connection or to dispersal by birds must remain an open question.

"Colour and Chemical Constitution: A Study of the Phthaleins and Related Compounds," by JAMES MOIR.

ORDINARY MONTHLY MEETING.

An Ordinary Meeting was held on Wednesday, April 18th, 1917, at 8.15 p.m., in the Board Room of the South African Association, Church Square, Capetown.

The President, Dr. L. PÉRINGUEY, was in the Chair.

The Minutes of the previous meeting were confirmed.

Prof. R. B. YOUNG was admitted a Fellow of the Society.

Dr. E. T. STEGMANN and Mr. S. H. SCAIFE were elected members.

EXHIBITS.

The President exhibited polychrome and monochrome paintings, executed on river-water and other flat stones found in exploring caverns occupied by Strand Looper Sans along the littoral of the Cape. These paintings are of a type superior in some cases to the well-known parietal paintings of the Bushmen of the interior. They were found lying, and in some cases with the painting downwards, on or slightly above the flexed skeleton. That the paintings were executed for inhumation purposes, and were not detached

from painted scenes on parietal surfaces is proved by the painting being continued on the side of the fractured slab. The technique and pigments are, however, those of the inland Bush, and this alone would go far to prove the identity of the Strand Looper with the Bushman as one race. The Bush painted and graved; the Hottentot neither paints nor graves. Singularly enough the name Hottentot should apply to that race which is now dubbed Bushman. One of the scenes corroborates details of the Hottentot (Strand Looper) deportment given by Captain Beaulieu, who touched at Table Bay in 1621.

Mr. S. H. HAUGHTON exhibited an almost complete skeleton of a specimen of fossil reptile from the middle Beaufort Beds.

The specimen exhibited was obtained by Dr. A. L. du Toit in Natal, and was associated with portions of skulls of undoubted species of *Lystrosaurus*. Apart from the fact that the skull and lower jaw are associated with the larger part of the skeleton, the specimen is of interest in that it seems to form a link between some Dicynodonts of the *Cistecephalus* zone and *Lystrosaurus* proper. The snout is bent down as in the latter genus, but it is not so greatly elongate. The relations of the bones of the top of the skull are typically Dicynodont. The upper border of the ilium is notched as in *Lystrosaurus*, but there are only two notches instead of three. In view of its intermediate character, it has been thought advisable to create for it a new genus *Prolystrosaurus*, which is also considered to include the form described as *Dicynodon strigops*.

Mr. K. H. BARNARD exhibited shells collected in Namaqualand by Dr. Rogers.

Examples of most of the known species and varieties of the *Dorcasinae* were shown together with some specimens of the allied sub-families from other parts of the world. Remarks were made on the supposed phylogeny of the family according to the recent anatomical researches of Watson and on the variation in the Helicoid form according to habitat.

Dr. A. L. DU TOIT exhibited some hybrid graphite-bearing rocks from Natal.

These are found at the Ingeli and near Ladysmith, and have been produced by the intrusion of dolerite into carbonaceous shale. The latter has been disrupted, and all stages are seen up to a breccia in which small fragments of shale are embedded in an igneous matrix, the sedimentary rock having been completely re-crystallised with the development of graphite and silicates, while the dolerite by reaction and incorporation of silica from the inclusions has been acidified and is now pale in colour.

COMMUNICATIONS.

"Note on the Expansion of the Product of Two Oblong Arrays," by Sir THOMAS MUIR.

The form taken by Binet and Cauchy's well-known expansion of the year 1812 is that of a sum of products of pairs of determinants: the form of the expansion now given is that of an aggregate of single determinants. The relation between the two is explained and a historical remark added.

"Notes on Radiation of Crystals," by J. STEPH. VAN DER LINGEN.

(a) Radiation patterns of the transformation of magnesium hydroxide to magnesium oxide. The patterns show that the reflecting planes of the crystal are disturbed when water is driven off. The patterns show that the "spots" become drawn out into radial lines, and that these radial lines reflect the intensity of the X-ray spectrum. These observations show that Friedrich's two-dimensional grating may only be attributed to crystals under definite physical conditions.

(b) Diamond tests by radiation patterns.

The following stones were examined:

"Macle," "spotted" stone, "spotted rejection" stone, and an "inferior brown block" with a spot in it. The patterns show that a "spot" in a stone causes a discontinuity in the intensity of individual spots of the patterns, and that a fracture of the lattice causes a discontinuity of the spots so that they now represent irregular markings on the plate. An ideal diamond's pattern shows a uniform intensity in all the spots.

(c) Bultfontein Apophyllite—(1) ideal, and (2) showing a cleavage crack along a cleavage plane.

The flaw causes the spots of the "flawed" crystal to present a nebular appearance, whereas the ideal stone shows a uniform distribution of intensity in the elliptic spots. This represents a case of discontinuity in the lattice normal to the incident rays.

(d) Serpentine, malachite and pseudomorph quartz.

Serpentine shows a regular "radial line" pattern symmetrical to a line parallel to the threads of the crystal. This indicates that serpentine is not triclinic unless every specimen examined was a "twin."

Malachite shows three "lines" parallel to the threads and some minor radial lines normal to the former deviating slightly from the normal.

Crocidolite: A long exposure shows that it is micro-crystalline and that the elementary units have a tendency to favour a direction parallel to the threads.

(e) A square plate of iodine showed, after an exposure of about an hour, diffraction, a phenomenon similar to that described by Prof. Laub of Buenos Ayres.

In this case the plate shows diagonal lines of zero intensity.

"A Summary of the Distribution of the Genera of South African Flowering Plants (with special reference to the Flora of the Uitenhage and Port Elizabeth divisions)," by S. SCHÖNLAND.

This is to a large extent based on published data checked and enlarged,

however, by the author's personal knowledge. It was compiled in connection with a study of the flora of Uitenhage and Port Elizabeth, but it is hoped that it may be welcome to other botanists who desire to have readily available a summary showing the general trend of distribution of South African genera.

"Note upon the Endocranial Cast obtained from the Ancient Calvaria found at Boskop, Transvaal," by G. ELLIOT SMITH.

The author describes the cast representing the form of the cranial cavity of the skull-cap from Boskop described by Mr. S. H. Haughton, and states that whatever the date of the Boskop remains may be, the evidence now in our possession suggests that this early inhabitant of the Transvaal represents the type of the immediate ancestors of the men of the Upper Palaeolithic Age, possibly somewhat modified in the course of his southern migration. It probably represents the earliest (not necessarily in actual age) known phase of *Homo sapiens* in the course of his transformation from a condition analogous to that of Neanderthal man to that of Cro-Magnon.

ORDINARY MEETING.

An Ordinary Meeting was held on Wednesday, June 20th, 1917, at 8.15 p.m., in the Board Room of the South African Association, Church Square, Capetown.

The President, Dr. L. PÉRINGUEY, was in the Chair.

The Minutes of the previous meeting were confirmed.

Mr. J. BOYD, F.I.C., A.R.T.C. (Glasgow) was elected a member of the Society.

Notice of Motion was given by Mr. C. W. Mally with reference to the preservation of anatomical material.

EXHIBITIONS.

Miss J. E. SMITH, M.Sc., gave an exhibition of some higher fungi and lichens found in South Africa. The exhibits included some interesting forms from the National Botanic Gardens, Kirstenbosch, among them *Tremella frondosa*, *Agaricus deliciosus* (an edible fungus, allied to the mushroom, very common at Kirstenbosch), and a *Pezizi*, found inside the stem of a tree fern. Attention was drawn to the diverse adaptations for spore protection and dispersal.

Mr. C. W. MALLY gave an exhibit of the beetle *Formicomus caeruleus*, which attacks and devours the living pernicious scale. This beetle is not merely a scavenger, but from Mr. Mally's observations it is clear that scale insects are killed by it, and it may be a valuable auxiliary in the destruction of the scale.

COMMUNICATIONS :

"Note on a Case of Hermaphroditism." By H. V. EXNER.

The author describes as a case of hermaphroditism the body of a person of unsound mind, who had the outward appearance of a Kafir girl. The nature of the case was only recognised after a histological study of the genital organs.

"Note on the genus *Terfezia*: A Truffle from the Kalahari." By I. B. POLE-EVANS.

Attention is drawn to the fact that *Choeromyces*, a truffle hitherto unknown to Africa, has recently been reported from South Africa. The author points out that the best known South African truffles belong to the genus *Terfezia*.

The distinction between *Choeromyces* and *Terfezia* is indicated, and a description is given of a truffle (*T. Claveryi* Chat.) recently sent to the author from the Griqualand West district in the Kalahari.

ORDINARY MEETING.

August 15, 1917.

Dr. L. CRAWFORD in the Chair.

The Minutes of the previous meeting were confirmed.

COMMUNICATIONS :

"Note on the Resolvability of the Minors of a Compound Determinant." By Sir THOMAS MUIR.

"Colour and Chemical Constitution (Part II): The Spectra of the Mixed Phthaleins and of the Sulphone-phthaleins." By JAMES MOIR.

Mixed phthaleins, containing two different phenol residues, one of which is C_6H_4OH , are made with extraordinary ease by boiling paraoxybenzophenone-o-carboxylic acid with any phenol or amine, whether free or substituted. The spectra of 18 new phthaleins of this class are described, and the laws governing the colours are elucidated. This method is an excellent analytical one for identifying phenols and amines and their ethers and derivatives. The spectrum of phenolthymolphthalein is not exactly half-way between those of phenolphthalein and thymolphthalein. The spectra of 5 sulphonephthaleins made from "saccharin" are also described, also 6 more new derivatives of ordinary phenolphthalein (see Part I).

A new general formula for the coloured substances is put forward.

"Kimberley Diamonds: Especially Cleavage Diamonds." By J. R. SUTTON.

This paper is a general and statistical account of the diamonds produced in the mines under the control of the De Beers Company at Kimberley. It

describes the outstanding differences in size, colour, and type, between the yields of the different mines, speaks of coloured diamonds, bort, and especially cleavage diamonds; and advances a view that many diamonds have been naturally broken by the unequal expansion of themselves and mineral inclusions. It appears that brown diamonds have shown a particular disposition to come up broken from the deeper levels of the Wesseltou mine (though the ratio of colourless cleavage to colourless stones also increases with depth of mining), but the author doubts the common assertion that brown or smoky diamonds are markedly liable to spontaneous fracture.

“On the Phanerogamic Flora of the Divisions of Uitenhage and Port Elizabeth.” By S. SCHÖNLAND.

This paper is meant to be a companion to the papers published by the late Dr. Bolus and Major Wolley Dod on the Flora of the Cape Peninsula, and by the late Dr. J. Medley Wood on the Flora of Natal. There are 2290 species recorded, of which 98 are considered by the author not to be native. They are distributed over 128 natural orders and 712 genera. There are, however, still large tracts of this area unexplored. Most of the localities quoted are contained in about 600 sq. miles, while the total area is about 2500 sq. miles; much of the remaining tract is, however, covered by fairly uniform karroid succulent vegetation.

“A Lunar Period in the Rates of Evaporation and Rainfall.” By J. R. SUTTON.

This paper calls attention to the possibility of a lunar influence governing the evaporation from a water surface, and a lunar period in the incidence of a rainfall. Tables are given showing that as the result of hourly observations of evaporation and rainfall during the 120 lunar months from August, 1899, to April 1909, rainfall has its maximum frequency about the time of moonrise, and its minimum just after moonset; also that the rate of evaporation has a maximum and a minimum, respectively shortly after the moon passes the meridian above and below the horizon.

ANNUAL MEETING.

The Annual Meeting was held on Wednesday, September 26th, 1917, at 8.15 p.m., in the Board Room of the South African Association, Church Square, Capetown.

The President, Dr. L. PÉRINGUEY, was in the Chair.

Dr. CHARLES EDWARD MOSS, M.A., D.Sc., B.Sc., F.L.S., F.R.G.S., proposed by JOSEPH BURTT-DAVY, R. T. A. INNES, R. B. YOUNG and A. OGG, and—

Mr. CHARLES WILLIAM MALLY, M.Sc., F.E.S., F.L.S., proposed by JOSEPH BURTT-DAVY, CHAS. P. LOUNSBURY, W. A. CALDECOTT, R. T. A. INNES, R. B. YOUNG and ROBERT A. LEHFELDT, were elected Fellows of the Society.

ORDINARY MEETING.

An Ordinary Meeting was held on Wednesday, September 26th, 1917, in the Board Room of the South African Association, Church Square, Cape-town.

The President, was in the Chair.

The Minutes of the previous Ordinary Meeting were confirmed.

Miss E. L. STEPHENS exhibited specimens of eleven parasitic plants belonging to the genera *Cassytha*, *Hydnora*, *Viscum*, *Striga*, *Loranthus*, *Hyobanche*, *Harveya* and *Sarcophyte*, and made some brief remarks on their structure and biology.

COMMUNICATIONS:

"Note on the Abnormal Development of the Genital Organs of *Jasus Lalandii*." By W. VON BONDE.

The author records a peculiar abnormality in a male Cape Crawfish.

Three distinct genital apertures are developed, two normally, and a third abnormally, the latter occurring on the fourth walking leg of the right side.

Internally the *vas deferens* of the right bifurcates, sending a branch to the normal opening and a second to the abnormal aperture.

"On the Colour-Octahedron as a Complexity": being suggestions towards a Mathematics of Colour. By G. H. MALAN.

Developing certain ideas of Meinong, who contends that the possibility of representing certain well-known facts in connection with Colour-Psychology by a diagram in the form of an octahedron rests on the presence of certain *a priori* relations incidental to the very nature of colour itself, the writer is led to examine Meinong's contention critically in the light of modern Mathematical Logic (as expounded by B. Russell). The result of this examination is (1) to show that Meinong's theory, though true in its intention, is seriously at fault in its practical conception of an *à priori* science of colour, because of the ignorance of its author of the principles of mathematics as revealed by recent researches of mathematicians, and (2) to necessitate a more exact discrimination between the standpoints of Empirical Psychology and Mathematical Science. In order to sustain his negative criticism of Meinong's "Geometry of Colours," the writer then endeavours to prove that the formal relations obtaining between colours are the very same as those with which mathematics is ordinarily conversant,

and to formulate a few provisional though fairly definite laws of a kind which colour-mathematics has to determine.

“A List of S.A. Fungi.” By Miss A. M. BOTTOMLEY.

This paper is a systematic compilation, with indexes of all the South African Fungi in the Government Mycological Herbarium. It records some 276 genera and 800 named species, some of the more important or more interesting of which are illustrated by photographs of actual specimens.

Considerable space is occupied by the Rusts, the Perisporales and the Pore Fungi, three groups which are receiving particular attention in the Mycological Department.

ORDINARY MEETING.

An Ordinary Meeting was held on Wednesday, October 17th, 1917, at 8.15 p.m., in the Board Room of the South African Association, Church Square, Capetown.

Dr. A. JASPER ANDERSON, Vice-President, was in the Chair.

The Minutes of the previous Meeting were confirmed.

Mr. C. D. LESLIE and Mr. BERNARD PRICE were elected members of the Society.

Mr. L. P. BOSMAN, B.A., and Prof. R. W. WILCOCKS were nominated for membership.

The CHAIRMAN gave notice of the election of the Council, President and Officers, and announced the Council's recommendation to the Society as members of Council for 1918 of the following seven members of the existing Council:—A. JASPER ANDERSON, W. A. CALDECOTT, G. S. CORSTORPHINE, L. CRAWFORD, S. S. HOUGH, W. A. JOLLY, and L. PÉRINGUEY; and the following five Fellows:—J. C. BEATTIE, J. D. F. GILCHRIST, J. MOIR, I. B. POLE-EVANS, and Sir A. THEILER.

The Council further recommend J. D. F. GILCHRIST as President, L. CRAWFORD as Hon. Treasurer, and W. A. JOLLY as Hon. General Secretary.

COMMUNICATIONS:

“Spectrum phenomena in the Chromium Compounds: being Part IV of the spectrum of the Ruby and Emerald.” By JAMES MOIR.

It has been found that although aqueous solutions of the chromium salts do not show any narrow characteristic bands in the spectrum, yet when anhydrous (or nearly anhydrous) solutions are used, the spectrum is crossed by narrow bands in the red similar to what are seen in the ruby or emerald spectrum.

The solutions of chromium oxide in conc. sulphuric and in fused metaphosphoric acid have been investigated and the bands measured; they are very similar to those seen in the emerald, but not absolutely identical;

whilst the bands of the ruby, although similar in arrangement, are displaced into a region of lower frequency. Both gem colours are due to chromium, but the vibrations are differently loaded (silica and beryllia against alumina).

“Colour and Chemical Constitution. Part III: Derivatives of the unknown ortho-para-phenolphthalein.” By JAMES MOIR.

Phthaleins in which one of the hydroxyl-groups is *ortho*- and the other *para*- to the central carbon have been prepared from para-substituted phenols with oxybenzoylbenzoic acid. They are like the common phthaleins, but their absorption-bands are broad, although in much the same position. An attempt to make *o-p*-phenolphthalein itself gave a product very closely resembling common phenolphthalein, and a similar substance was obtained by dehydrating oxybenzoylbenzoic acid alone with sulphuric acid. They are, nevertheless, probably not identical with common phenolphthalein. “Phenolphthaleinoxime” is not an oxime, but is the *p*-oxyanil of oxybenzophenonecarboxylic acid. Common phenolphthalein in normal alkali is colourless when cold, but becomes pink on warming.