

ANNUAL REPORT

OF

THE SOUTH AFRICAN INSTITUTION.

READ 13th JUNE 1831.

THE Council, in now reporting to the Members of the Institution, respecting the proceedings of last year, will allude shortly, 1. To the Transactions of the Institution; 2. To the Subjects to which its attention has been directed; and, 3. To the Acquisitions it has made.

1. As to its Transactions :—there have been admitted during the past twelve months, 10 members, making the whole number now composing the Institution, to be 50 members, and 14 subscribers, not members. The Council has to remark with regret, that, in several instances, the attendance of members on the monthly sittings of the Association, has been thin and discouraging; it is hoped that the change of the hour of assembling from 8 o'clock to 3 p.m. may prove a remedy for this occurrence. The Council have also, as last year, to state that no competitor has appeared for the premium offered by the Association, for a Statistical Account of any District in the Colony. The smaller premiums which the Association offered this year, were proposed with the intention of promoting the improvement of objects cultivated for gratification or emolument; and making due allowance for the unprepared state in which competitors must be found, on a first occasion of the kind, the Show of Fruit, &c. on the 19th of February, was highly gratifying. In conformity with the report of the Committee appointed to arrange and conduct this matter, premiums were ordered to be presented to Mr. P. van Breda, Mr. M. van Breda, Mr. J. Cloete, Plumstead; Mr. H. Cloete, Lewenhoff; Mr. Bergh, and the Gardener to the Rev. A. Faure,—and the means of preparing appropriate Medals having been procured, the Council have determined that those above-mentioned, together with the gold medals awarded last year to Mr. Naude and Mr. Bowie, shall be presented at the General Annual Meeting held this day. The means in this instance adopted

by the Institution, have never failed, in any country where they have been tried, to produce an improvement in its productions, beyond all original expectation, and if by similar efforts any thing approaching to the same degree of progress should occur here as in other countries, the vegetable productions cultivated at the Cape, may be expected to attain a beauty and excellence hitherto unrivalled. The effect of these means has been not only to improve what existed any where, but also to promote the introduction of articles admired for their splendor and utility in other countries, and they have led to the creation or discovery of new varieties suited to the soil and climate. With the advantages which our land possesses, for improving what is established, or gathering what is foreign, there is every thing favorable to its assuming an eminent rank amid those that are most fruitful, and are best adorned with whatever tends to the sustenance or gratification of their inhabitants.

On the advantages of having a Botanic or Experimental Garden in this place, and on the facilities for constructing and preserving it, it is unnecessary to dilate. But this is an object in which the Institution can only aid, without having the prospect, in the present state of its funds and engagements, of carrying on successfully an independent establishment.— Under our Association it could not be expected to make such a return of pecuniary profit as would serve to counterbalance its expence; though it cannot be doubted, that, with the interested and vigilant superintendence of an individual profiting by its produce, such would be the case; from the facilities here presented for the exportation of indigenous articles, and from the advantages which would be derived from it as a nursery ground for the colony, to introduce here the productions of similar climates. In carrying on the measures announced as in view, last year, under the liberal encouragement offered by His Excellency the Governor, the Council expected that before this period, an individual interested in the same object, would have been found, desirous of making it professionally a source of emolument to himself, but willing at the same time to make it so far an establishment for the public benefit, as to justify the Institution in transferring to him, whatever facilities they might be able to attain, or in affording whatever small aid their funds or influence might admit. The only proposal of this kind which the Council has had an opportunity of making, has, for the present, been declined.

The Council have been much gratified by finding that a similarity of view had led to the formation of a similar Society in the Island of Mauritius, of which the Annual Report for 1829-30, was read at one of the Sitzings of the Institution.

From this document, and from others which since have reached us, we rejoice to find that the Société d'Histoire Naturelle de l'Isle Maurice, prosecutes with exemplary assiduity and eminent skill, the course of investigations to which they have given themselves. The Institutions are now on terms of strictest correspondence, both having granted to the members of the other, who may be present in either place, the privileges of Corresponding Members.

The Institution has not had yet the pleasure of seeing any corresponding Associations established in our own country districts, in furtherance of its purposes.

The Council is glad to find that "The South African Quarterly Journal" has excited attention both in this country and elsewhere; and its continued and regular publication would, we know from experience, be in many respects advantageous to the Institution and the public, but, in consequence of the supply of material falling short of that which is required by a quarterly publication, it has been found necessary to publish successive numbers only when suitable means present themselves.

2. In regard to the Subjects submitted to the consideration of the Institution at its Sitzings, we have to notice,—

1. In *Statistics*, only one or two facts. From a return of the Convictions before the Local Courts in the District of Albany, containing a population of 5896, for the year 1829, we learn that the proportions of crimes in the different races of that population, differ exceedingly: those occurring in the white race amounting to 1 in 84, among the Hottentots to 1 in 14, and among the other people of colour to 1 in 10, of their respective numbers. In the returns of the population of the whole colony for the same year, we observe an excess of births beyond the mortality, to the amount of 1450, being one eighty-second part of the whole population. This would determine the period in which the population will double itself, as 57 years nearly. In the returns of cases tried before the Circuit Courts of the whole colony, in 1830, the proportions are 1 conviction for every 750 persons; the crimes against the person amounting to 1 in 10 of the convictions; the latter occurring almost solely among the coloured races. The convictions for the same year, compared with the accusations, give the following remarkable results, that, of the white population, three-fourths only of the whole tried are convicted, while of the Hottentots and other people of colour, jointly, the convicted amount to $\frac{1}{4}$ nearly, of the whole accused.

2. On the subject of Botany, we have to notice the continuation, by Mr. Bowie, of his remarks on the cultivation of

exotic plants, and to express our hope that the Members of the Institution will devote their attention largely to this subject, as they have opportunity; and we will be pardoned for particularizing, as an example, the conduct of Mr. Von Ludwig, an associate, and member of your Council, who has deeply merited the gratitude of his countrymen. We have lately received from him, a list containing the names of no less than 207 distinct species, which he is now attempting to naturalize, along with many varieties of the common fruit trees. The number which the colony had been successful in establishing, at the time when Thunberg prepared his *Flora Capensis*, cannot be considered as exceeding 158, possessing any claims to beauty or utility. It may be perhaps discovered, that many others, and even some of those now procured by Mr. Ludwig, already have been tried in other cases without success; and it is to be regretted that we have not a detail of these unsuccessful experiments; since the information to be derived from such is always of great value, as pointing out the causes of failure, and tending to secure success in other attempts. Mr. Ludwig's list contains a great proportion of the useful plants and trees cultivated in Europe, or adorning its forests. His attempts will, we hope, in a short period, add much to the beauty and variety of the ornamental planting, under which it is necessary to seek shelter from the summer's heat, by affording a greater choice of species to accommodate the different situations where such is required, and will doubtless tend to confer on the colony, the inestimable benefit of scattering useful timber over the monotonous wastes of which so much of it consists. Mr. Ludwig has also succeeded in introducing the Cochineal Insect, and has remarked an interesting fact, in regard to its habits, in its preference of the *Cactus Lana*, or common Turkish fig. The Aloe plant of Barbadoes has also been introduced successfully by another individual; and the Cork tree by a third.

In the science of Mineralogy—one probable locality of Fossil Remains, belonging to a large mammiferous animal, has been indicated in the Karroo. Two different individuals of the species have been noticed by different observers, and various fragments have been sent hither, part of which are now lodged in the Museum. No such minute detail of their position has reached us, as to determine the æra of their deposition, *i. e.* whether they belong to the ancient general collections, with which so many districts of the world are strewed, or have been produced by accidental circumstances of local effect. It may be inferred, that the catastrophe which deposited them must either have been distant in time, and universal, or else sudden and peculiar in its operation, for, by no occurrence of late date,

could such an appearance have been presented, unless the destroying cause had so operated as to secure the carcasses from the numerous and powerful devourers of carrion with which our deserts abound.

We may notice also, on this branch of our inquiries, two papers on the Analysis of Mineral Springs in the colony. One of which, by Dr. Mair at Uitenhage, proposes some speculations with regard to the causes of the high temperature of several of our springs, presenting us for future investigation, the consideration whether this can arise from volcanic agency, or be the more probable result of chemical changes near the earth's surface.

In Meteorology we have to regret that so little is done over the colony, or so few notices received of what is doing. The Institution has in its possession, Diaries of the Weather, &c. at Port Elizabeth, during three years; these are not, however, successive, and the earlier ones of them have been, apparently from the want of instruments, kept in an unsatisfactory mode, but still so as to show the zeal and perseverance of the inquirer. The most valuable, is an abstract of Observations on the Temperature, Atmospheric Pressure, and prevailing Winds, during 1830, transmitted by Mr. Francis. The abstract represents the extreme and mean temperatures of that year as 80° . $70\frac{1}{2}^{\circ}$. and 61° . The highest mean temperature of a month, (Jan.) is $74\frac{1}{2}$ Farnh. The mean height of the Barometer is given as 30-15 inches, and the range 0-7 inch. The prevailing winds are of the same character as those which agitate our atmosphere, and are noticed as 229 days of north-west and 128 of south-east, with 8 days calm. Those remarks combined with an abstract in our possession, of the winds during 1826, would give the proportions of these winds as 225 to 136. The days on which there was rain, more or less, are marked as 62. It is to be regretted that no measurement is made of the real quantity of rain falling annually in the different districts of the colony: nor, in fact, any adequate means taken to ascertain the characters of the two very dissimilar climates which prevail on the extended sea coast, and in the wide and arid interior of our country, though these circumstances are of such obvious importance in estimating their capabilities, in judging of the character of their vegetation, or in illustrating the condition of society which will naturally prevail in them.

The Atmosphere can never cease to be to us an object of interest, and the domain which the investigation of its properties has now opened to human research, will probably be for generations the field where science will seek its triumphs and curiosity its rewards. Our ignorance of it stands as a barrier

in the prosecution of other sciences, and of all which men pursue merely through their power of analysis and generalization exercised on phenomena over the occurrence of which they have no control, its improvement perhaps needs the most intricate research, and its perfection the most lasting and widely-diffused observation; to measure its various powers and prognosticate their variations, will be, if brought under the control of human science, the loftiest and most beneficial of its results. But it is one which peculiarly requires the aid of many widely scattered observers, and of vigilant observation. All the climates of the world are under its influence, and by it are united into one system, so that no great change in its functions in one district, can be entirely of local effect, but must be either the symptom or the cause of extended variations. Ere a perfect system of climate for one country can be constructed, these variations must be observed in all others, and their causes traced to their origin; and perhaps the real reason why such attempts have hitherto been so futile, is, that they have been founded on the partial data derived from local observations. The little shifting eddies of the stream have alone been watched, without looking to the swell or fall of the wide and far travelled currents which give them birth. Though separated by a very distinct boundary, the great atmospheric commotions or the changes which occur beyond its mean movements in one hemisphere, cannot fail of influencing the other; and hence the obvious advantage of universal observations at the same times, and hence the value, for purposes of comparison, due to observations in past years. One of the most instructive means of investigating the variations of these currents, would be to construct a map of all the directions which the wind has assumed over every part of the world at the same instant, and it will be, perhaps, only when such a spectacle can be presented for every day, over many successive years, that men will have skill to form rules for determining the changes of coming seasons. With such aid, of sufficient extent and continuance, it would no longer be chimerical to predict with no hesitating accuracy, the cycle of the seasons. There are means, we may remark, for the attainment of this result, more abundant and important than men have yet employed. When we consider the number of ships constantly traversing the ocean, with their existence dependant on the vigilance of their observations, and almost all in the practice of recording minutely, the changes which they experience, there is presented to us in the journals of their voyages, an ample fund of the information we need; and perhaps a day has not elapsed for these many years, in which there might not have been derived from these floating observatories, the means of determining the course and termina-

tion of every breeze which has breathed upon the ocean. We would earnestly recommend the collection of such journals, to all members of the Institution who have opportunity.

We have our own part also in these discoveries to fulfil; the importance of which part will be evinced by a slight consideration of our position. All great changes in the aerial currents must be dependant on the universal currents, to which the atmosphere enveloping the world is subjected. Of these currents, the one sweeps over us in summer, diffusing the coolness of the higher latitudes over the regions betwixt us and the equator; it directs its course upon the warm and humid countries of the tropics, to which it is attracted by the influence of a vertical sun, expanding and raising the stream as it arrives loaded with the heat and vapour of the tropic atmosphere.—As it cannot be sustained in a heap over the equator, it necessarily flows back; constituting an upper stream sliding across the lower sheet of cooler air which supplies it, and it proceeds to its origin again, falling down upon the higher latitudes, and imparting to them the moisture of the equatorial seas and marshes. In the northern hemisphere, it forms the humid zephyr which breathes along with the moistures, somewhat of the heat of the central regions, over the cooler latitudes, where it falls.

In our position we encounter it as the rainy north-wester, rendered comparatively cold by its long journey in the high and freezing regions which it traverses. Various causes produce irregularities in the boundaries of that region or belt, over which these currents pass, and more particularly on that verge of the belt where the one stream commences its direction towards the equator and the other descends to fill the void. There the currents must be found intermingling, changing their relative positions, and each influencing in all imaginable modes and degrees, the direction and energy of the other.

Upon this boundary are we situated, or rather, it may be said, to pass over our heads in the transition from one season to the other. In following the parallel of latitude in which we are, we shall probably find places which are more permanently within, and others more permanently excluded from this boundary. The curves which the boundary would thus trace upon the globe, must be constantly varying their position and inflexions, not only in the changing seasons of any one year, but also in the corresponding seasons of one as compared with another. Since nothing new starts into being amidst the material causes of these changes, and nothing escapes that we know of by which they are much influenced, their varieties doubtless are subject to laws, intended for man's observation

and analysis, till he be able, as he has done in the more perfect science of astronomy, to look over cycles of revolutions, and disentangle from their present complexity, the causes and succession of phenomena, in which his power and wellbeing are so deeply involved.

This view tells us on what distant events the aspect of our seasons may depend, and that the direction or force of the summer breezes, which fan away from our soil the accumulating intensity of an unveiled sunshine, or the hazy gales which roll in the ocean's mists upon us, in our winter, may have derived their direction and force, in different seasons, from the comparative power with which the sun has scorched the central regions of our continent. And if observers were scattered closely over the regions of the world, each observation would aid in establishing some important fact, or tracing some interesting modification of those atmospheric energies, which, in their regularity and consequences, imitate the beautiful functions of the living frame.

There are, unfortunately, no meteorological instruments accessible to the community, which can be considered as of authority fitted to be resorted to as standards to regulate those of more common structure. We are not aware, that some, even of the commonest, have been at all regularly in use in the colony. It were certainly an object worthy the attention of the Institution, that the best and most approved in construction, should be at its disposal, for purposes of reference and comparison, and that measures be taken to disperse the means of observing, throughout the colony, and to secure attention to them.

We have now spoken of all the objects of practical utility which have engaged the attention of the Institution during the past year. But the sciences presented for our contemplation, have a nobler aspect than when seen merely as adding a little to the comforts of society. Science may be loved because it presents knowledge to gratify the mind's desire; they who so pursue it disown and disregard its profit, and trample on the commercial aspect it may wear, when it invites only by the petty consequences of making men fare the better or live the more sumptuously. When sought because they exercise and enlighten, the abstrusest may then present an aspect as inviting as the most popular; and to trace the inventor's skill in a formula, or follow the careful and penetrating research, wherewith his mind has combined and developed its components, or to scan the symmetry of its form or the power given by its application, may give an interest as intense as that wherewith the idle devour the productions of the romancer's genius. The pursuit demands respect or sympathy, as the

means of loftiest gratification to minds of the highest order. But let no one disregard even the practical value of that in which the philosopher seeks his enjoyment. The progress of knowledge is constantly bringing out into practical effect discoveries of pure science, which, when first announced, seemed unlikely to afford more than scope for the skill and practice of the cultivator. A future age will find the profit of arising discoveries, as the present is profiting by the past, however apart from present usefulness may be the course which the inquirer seems to pursue. The detonating contrivances once offered as an amusement to the tyro chemist, are effecting a change in the system of national assault or defence. Discoveries may be sought and loved as a matter of curiosity, and left to be applied to the use of future generations, as the seeds which serve for toys to a child and are flung aside upon the earth, are recognized again when they emerge into life, the origin of wide spread vegetation to other ages.

3. Acquisitions of the Association:—

The Treasurer reports, with the concurrence of the Auditors, that during last year the net receipts of the Institution have been £142; 17s. and the expenditure £183:7:1, leaving in his hands the sum of £65:5:8½ in cash, and that of outstanding claims, there is a balance in favor of the Institution of £38:8:6, making its total available fund amount to £103:14:2¾, including subscriptions now due, and acquisitions in the Stock of the Association.

The Council have to remark, that a great part of the above outstanding balance is so disposed of as to be refunded gradually by the transmission of Specimens to the Museum.

Of Acquisitions to this branch of the Institution, the Council have to notice,

1. A superb Lion, of which the skin was presented by His Excellency the Governor.
2. A specimen of the wild Boar of the Colony.
3. A Skull of a Hippopotamus, presented by the Rev. H. P. Hallbeck, Genadendal.
4. Some foreign Birds, &c. from The Right Honorable Lady Frances Cole.
5. The male and female of the Gilloorie of India, (*Sciurus Palmarum*,) presented by Madame Coudrie, of the Island of Mauritius.
6. A collection of native Birds, transmitted by Dr. Smith, amounting to 200 individuals. The disposal of which has not yet been arranged.
7. Specimens of Fossil Bones of a large Mammiferous Animal, from the Karroo; presented by the Rev. Dr. Adamson.