

CURRENT TOPICS.

Animal Breeding :—The most important law in breeding is the law of inheritance or as it is sometimes termed the law of similarity. Like begets like; therefore animals resemble their parents and are dependent on their ancestors for their characteristics. Then there is what is termed the law of variation. Nature has decreed that no animals shall be born exactly alike. Variation is noticeable when different strains are crossed; it is also affected by environment. Again there is always that tendency to revert *i. e.*; to throw back to some ancestor. This tendency becomes marked when mongrel and crossbred sires are used. It is to defeat the tendency to variation and reversion that our breeders are continually striving. To do this and to fix certain characteristics inbreeding and linebreeding are sometimes adopted.

Inbreeding is the mating of animals closely related, such as sire and daughter, dam and son and the term is applied generally to the mating of two animals each with over 50 per cent of the same blood. By inbreeding certain characteristics can be intensified and fixed and wonderful results obtained in a few generations. While inbreeding intensifies desired qualities it also magnifies faults. Consequently closely related animals that are to be mated must be very carefully selected.

Linebreeding is the mating of animals belonging to the same family but not having more than 50 per cent of the blood. For instance a farmer finds that a certain bull which he is using is giving good results and requiring another obtains one belonging to the same family to cross with the progeny of the first bull. This is line-breeding: Linebreeding is very popular amongst Victorian breeders of today and appears to be giving good results. It is the safest method that can be recommended to the beginner.

(Journal of Agriculture, Victoria. December, 1926.)

Importance of Tree-Planting: Rains remove twenty times as much plant food as crops.

This annual bathing bill costs the U. S. A. farmers more than 200 million dollars every year. Rainwater carries away to the ocean millions of tons of soil. With this rich topsoil goes 126,000

million pounds of plant food material twenty times the amount permanently removed by cropping. But this is only a fraction of the damage wrought. The real scourge of erosion is that it takes away not only the elements of plant food but soil leaving in many instances unfertile material difficult to till. In one instance it was found that 7 inches of topsoil were removed by sheet erosion in 24 years from a gently sloping field in Missouri. Soil scientists agree that most of the wornout lands of the world are in their present condition because much of the surface has been washed away and not because they have worn out by cropping.

A single county in the Piedmont region contains 90,000 acres of land formerly productive but now permanently ruined by erosion. Another county has 60,000 acres in a similar state.

(From Journal of Heredity : November 1926)

The Atmospheric Nitrogen Industry. The foundations of this industry were laid in 1785 by the experiments of Cavendish on the union of nitrogen and oxygen in the electric spark.

During the 19th century other experiments showed that N and H could unite to form ammonia (NH_3) when sparked and that nitrogen, carbon and alkali at high temperature could form cyanamides.

The industrial application of these methods of bringing inert N of the atmosphere into utilisable states of combination was not successful until the opening years of the new century when Birke-land and Eyde in Norway were able to operate the union of N and O in the electric arc on a technical scale.

About the same time the patents of Frank and Caro for the fixation of atmospheric N by leading it over heated calcium carbide when calcium cyanamide was formed, began to be worked and the product could be either directly used as a fertiliser or decomposed by water to yield ammonia.

Although the union of N and H in the presence of catalysts had been achieved long previously it was not until the experiments of Haber and Le Rosignol and their technical exploitation by the Badische Company that synthetic ammonia became a reality.

The three processes—production of nitric acid by the direct union of N and O in the electric arc, the formation of cyanamide and the direct synthesis of ammonia are those which have found technical application.

Chile nitrate, once almost the sole source of N supplied more N than all other sources in 1915. In 1922 it supplied only one-fifth of the world's needs for N and in 1925 a little under one-third.

The output of by product ammonium sulphate in 1913 was 280,000 tons of N and has not increased since. Whereas the output of fixed atmospheric N in 1900 was nil it had grown in 1925 to the impressive total of 550,000 tons or nearly one half of the world's production of fixed N.

The production of cyanamide has remained nearly stationary since 1917 but the synthetic ammonia output has risen rapidly since then.

In 1924 more than 300,000 tons of N were fixed as synthetic ammonia.

(Chemistry and Industry, Oct. 29, 1926.)

Vaginitis in cows :—When you have cows which constantly return to the bull but do not breed, this is in most cases due to the inflammation of the vagina, round about the vulva, in the lower angle of the front of the vagina. In appearance it looks as if there were little grains of sand underneath the membrane of the passage. The cows will go in calf if you wash them for 4—5 days with a disinfectant like lysol or one which has a soapy basis, *i. e.*, which becomes frothy when mixed with water. Do not use a mercurial disinfectant. 2 per cent of lysol is strong enough. Before the cow goes to the bull, wash it with bicarbonate of soda, a table spoonful to a gallon of water.

Lice :—The louse lays eggs which are fixed to hairs by a cementlike substance. These eggs are laid out one at a time, but an adult louse will lay 5 or 6 times a day. They hatch out in 7 to 10 days. The louse has a circle of hooks all round the mouth and by means of these obtains a good grip of the victim. It then inserts long piercing things into the skin and sucks the blood.

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Three different kinds of louse may be found in man—the head louse, the body louse and the crab louse, so named because of its shape.

Cleanliness is the simplest cure. Frequent washings of the body and clothes with soap and water will get rid of them. Blue ointment is of value against the crab louse. An ointment of one part of kerosene or eucalyptus oil to five parts of lard is a cure for head louse.

The Farmer's Unledgered Income:—Studies of more than 7000 farms well scattered over the United States and representing various types of agriculture show that the value of that part of the family living which is obtained from the farm roughly approximates one-ninths of the farm receipts and one-third of the net income, and that even in years when the money margin shows a deficit this unledgered income is able to maintain for the farmer a reasonably contented state of mind.

(From Journal of Agricultural Gazette, September 1926.)

English Village Life: The Royal Society of Arts, England, on the 26th of January last held a conference on the preservation of ancient cottages. This was presided over by the Prime Minister and substantial support was visible. This Society along with the Council for the Preservation of Rural England and Rural Community councils will, it is made out, take active steps to revivify the rural parts and to preserve the beauty of village and country cottage architecture which gives a special charm to the whole of the English country side.

Formosa as a Sugar Country: This island was ceded to Japan by China in 1895 and now it is the base of Japan's sugar supply.

The area of the island is 13,944 square miles of which 7400 are unoccupied, though in this region there are 85,000 "savages" so called. The population numbers 4 millions and they occupy a little over 4 million acres. There are rich alluvial deposits. Of the 2,900,325 acres under cultivation there are 1,926,020 acres of private ownership and 962,296 acres of Government property.

Fourteen kinds of crops are raised and the climate is semi-tropical with a soil that welcomes a variety of crops. 60,897 acres are under fruit. 29 per cent of the cultivated area is under irrigation schemes. Independent farmers number 917,787 and lead in progress. There are 694,325 tenant farmers and 2,305,396 farm laborers so that there is no labour problem as in most cane countries.

Rice competes with sugarcane and in some instances has paid better, and in 1925, 1,359,000 acres were planted to rice. The production was 32,214,456 bushels. This includes wet and dry rice.

In 1902, a sugar bureau was established to raise the quality and the quantity of sugar.

The rich alluvial deposits in the island are derived from clay, slate and to a small extent from sandstone and the soils are of a heavy clay texture. Formosa is nitrogen hungry. Phosphoric acid and potash are plentiful. There is considerable green manuring which is found profitable but is not in general practice in most cane fields. They calculate getting 31 pounds of nitrogen per acre on this plan. Cane trash is buried under.

In 1895, the cane industry was in a neglected condition. Rosebud variety of cane was introduced. Protection of the sugar up to 90 per cent of the declared value of the Java sugar was held for a term of years which was later reduced to 50 per cent and area under cane increased.

1925 shows an output of 575,735 long tons, raws that are all sent to Japan for refining and this was from an area of 294,148 acres and from 4,732,246 tons of canes. The low output of about 16 tons cane per acre is due to four reasons:—

- (1) Presence of a lot of small cane farmers who are hard to move and who operate independent of sugar companies and raise other crops as tea and rice in abundance.
- (2) Presence of many isolated farms on hills where they cannot be irrigated.
- (3) The skimpy use of fertilizers.

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and (4) Weather difficulties—particularly typhoons which rage over the Pacific, and long droughts in summer.

(Abstracted from the Planter and Sugar Manufacturer, Jan. 15, 27.)

Japan :—The Prime Minister in his speech before the Diet amongst other things said that "in the execution of the policy of social improvement in the agrarian districts, the Government would enlarge the scope of the plan for the maintenance and establishment of independent farmers which was previously instituted, and after referring to the conspicuous increase of population every year, the insufficiency in the output of wheat and rice and the increase in the volume of imports of cereals, continued that unless a lasting and fundamental policy was established concerning the population and the supply of foodstuffs, the nation would some day find itself in difficulty and with this view the acceleration of the development of the Hokkaide (northern part of Japan) was of urgent necessity.

Groundnut in New South Wales :—Experiments carried out at Grafton farm during 1925-26 have given interesting results. October planting averaged an acre yield of 800 lbs. nuts and 2027 lbs. hay, while the January planting was only 50 per cent.

In the variety trials, white Spanish came out first with 1317 lbs. nuts an acre while Java, red Spanish and Valentia went down.

In spacing tests with rows-3 feet apart, white Spanish-3 inch spacing plot (using 44 lbs. per acre) gave 1717 lbs. nuts an acre and 6 inch spacing (using 23 lbs. an acre) gave only 1417 lbs. an acre. The spacing plots were sown on December 25th and harvested on 26th May.

India's Road Development :—A movement is afoot under the leadership of Mr. Reginald Ford, Manager Dunlop Co. India to provide for a road development fund by importers of car manufacturers outside India and oil concerns, contributing in three equal proportions for three years a sum of one lakh of Rupees a year. (Free Press.)

Unemployment Problem — Theories examined :—Dr. K. Kunhikannan, Entomologist, Mysore, lecturing before the Y. M.

C. A. at Bangalore on 18-2-27 condemned in strong terms the hackneyed theories for solving unemployment viz, that modern youth should be given agricultural education and vocational education should be introduced in High schools. He said, owing to the continuous growth of population and gradual decay of handicrafts and industries, the bulk of the people had been driven to the land with the result that the yield power was now at zero and no holding gave more than Rs. 10 per acre.

Owing to the conflict of what are known as urban and rural standards of life the cry of 'Back to the Land' and vocational education was a false cry because labour is cheap and productivity of the soil is the lowest. If the question of unemployment had to be solved in any way, it must be that the agricultural education and vocational education must be given not to the youth in school and colleges but to those who were unaffected by western influences.

Cattle Breeding in India:—Mr. W. Smith, Imperial Dairy Expert delivered a lecture on the subject at which Lord Irwin presided. The lecture was illustrated by cinema films. Mr. Smith said that with the exception of parts of the Punjab, the quality of cattle was deteriorating. In London fresh milk was 75 per cent cheaper than that in Indian cities. His Excellency said that the waste of expenditure incurred on useless cattle was something in the neighbourhood of 6 crores. If that figure was true India was spending on useless cattle as much as she was spending on her whole army.

Permanent Settlement:—In his reply to the address from the Oudh talukdars on 22-2-27, Lord Irwin said:—"You have made a request for the grant of a permanent settlement. You may be sure I fully realise the importance of maintaining stable conditions in which agriculturists can look with confidence to the future and I am ready to do all I can to assist the Indian agriculturist on whom in a great measure the prosperity of India lies. But much grain has passed through the mill since Lord Cornwallis gave Bengal its permanent settlement. India's place in the commercial markets of the world and the intricacies of her financial and social problems have brought many new factors into the picture which necessitates elasticity in public revenues and expenditure, There are moreover obvious objections to

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permanent settlement. It involves the sacrifice of a share of the State in the growing value of the land and perpetuates assessments which must become more and more uneven as time goes on. Any measure which tends permanently to limit the share which any class is called upon to contribute to the general revenues is almost certain to result in an unfair burden on other classes. The evidence before the Government does not bear out the contention that the present system of periodic revision of land assessment places any real obstacle in the way of real improvements to land or adversely affects the agricultural development generally.

All India Sugar cane crop—Final forecast for 1926-27 :—

The area sown is estimated at 2.92 million acres and the total yield 3.20 million tons of raw sugar, the increase over last year has been 9 per cent in area and 8 per cent in yield.

Assam Winter Rice crop :—1926-27—Final forecast :—

The estimated area is 3.405 million acres and the produce 24,510 million cwts. on the basis of a normal yield of 8 cwts. of rice an acre.

*Co-operation in Bihar and Orissa :—*The report of the Co-operative Department for 1925 shows all round progress. The number of societies rose by 800 and membership by 15,000 and the working capital to 410 lakhs of rupees.

Some central banks are doing good work in spreading primary education. During 1925, it is understood 75 patasalas were opened by them for which they contributed Rs. 7500, the District Boards making a contribution of Rs. 14,000.

*Co-operation in the Punjab :—*The report for 1925 bears evidence that the co-operative movement is fast gaining ground, the number of societies having risen from 3,300 in 1915 to 15,000 with a capital of 9 crores and a membership of 450,000. The most important features of the year's work are :—the development of the provincial co-operative bank, Land mortgage banks, and the better farming and cattle-breeding societies.

With an advance of four and a half lakhs of rupees, 3372 acres were redeemed. The co-operative movement has attained such a stage that the Punjab Government think that an expert in technical banking should be attached to the Registrar's staff. There are 600 thrift societies formed almost entirely amongst non-

agricultural classes. There are societies for the education of children—both boys and girls. A new type evolved in Amritsar and Gurdaspur districts is the class of *Land Revenue Redemption Societies* (8 in number), the object of which is to collect annual contributions from members until the interest of the sum so collected is sufficient to pay their land revenue.

Bombay Agricultural Situation:—An official communique states that to give relief to ryots owing to damages by locusts and failure of rain, measures have been taken to give bonuses to low paid patels and doles to inferior village servants and for improving village water supply in Ahmadnagar and Poona districts. Taccavi loans are being given in Bijapur district amounting in all to over Rs. 250,000.

Bengal cotton crop 1926-27. Final report:—The total area sown with early cotton which is chiefly grown in the Chittagong Hill tracts, ie the Tripura State and to a small extent in all districts is returned as 163,228 acres and that with the late crop at 1403 acres. The weather was generally favourable. The outturn of the early crop is estimated at 60,248 bales and that of the late crop 820 bales.

Tourists:—Mrs. Orchard, representative of the Labour Union Chicago, with her husband Mr. John E. Orchard, Colombia University, New York, is on a visit to this country. Her object is to study the labour conditions in the East. Dr. Goldstien, Founder of the National Home for Jews in Palestine is in India to investigate the problem of agricultural colonies.

Railway Extensions:—It is ascertained that 900 miles of railway will be opened in 1927-28 of which the following are portions in Madras:—S. I. Ry. Shoranur-Nilambur—41; Virudunagar-Tenkasi—75; Dindigul-Pollachi—75; Madura-Bodinayakanore . . . and Cuddalore-Vriddachalam—85 miles. M. S. M. Ry, Nidadavole—Narasapatam—47 and Gudivada—Bhimavaram—41 miles. These tracts are proposed to be tapped because of the enormous difficulty in the movement of timber and agricultural produce viz cotton, groundnut and paddy.

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view to demonstrate that if West Coast methods are adopted, coir fibre and yarn could be produced on the East Coast approximately equal in quality to that of the Malabar Coast. This will secure for the East Coast yarn on a commercial basis and improve the economic position of some of the coastal areas.

Parnell Cup:—The staff of the Paddy section raised a sum of Rs. 130 amongst themselves in appreciation of the qualities of Mr. F. R. Parnell who had been the Paddy Breeder since the inception of the station in 1914 and who retired on a proportionate pension in February 1925 to take up duties under the British Cotton Growers' Association for work in South Africa. The sum collected was sufficient for a bust of Mr. Parnell and a rolling cup in his name for the best team in an inter-class Hockey tournament. Both these have been handed over to the Principal by the donors recently. The bust has been skillfully done and is the work of the artist of that section—Mr. T. S. Alwar Ayyengar.

NEWS AND NOTES.

Officers' Club:—The Officers' Club was treated this month to two excellent entertainments, one by the management of the Narayana Gurukula, Coonoor when Mr. Narasimha Ayyengar, B.A. Private Secretary to Mr. K. T. Paul helped with vocal music. On the second occasion, Mr. P. D. Karunakar, M. Sc. gave a conversation on his four and-a half years' experience of his own University-Iowa and of American life.

Visitors:—During the month two Honorary visitors paid official visits to the College. They were Mr. Rao Sahib Rangaswami Ayyengar, B. A., B. L., Cuddapah and Lt. Colonel R. Dennistoun, Nilgiris. Mr. Wynne Sayer, Secretary, Sugar Bureau visited the Imperial Sugarcane Station during the middle of the month.

Students' Club:—On the 12th, the last working day for the senior students, this club celebrated its Annual Day. The special feature this year was the addition of a fancy dress competition in which eight students took part and their performances were excellent. Mr. B. V. Venkatachary as waiter, Mr. M. P. Narasimha Rao as a Tirupathi pilgrim, Mr. K. H. Subramanya Sarma