

Gleanings

Observations on human behaviour in experimental semi-starvation and rehabilitation. Franklin, J.C., Schiele, B.C., Brozek, J., and Keys, A. In contrast to the disappearance of hunger said to occur in total starvation, the semi-starved subjects were always hungry, though some suffered more than others. Desire for dietary variety was very strong at times, but was always subordinated to a craving for bulk. Food became the dominating factor in thought and action. Eating habits showed a possessive attitude, subjects hovering closely over their trays and eating silently and deliberately, with intense concentration. Every particle of food was consumed, and dishes were licked. Many men showed fantastic ingenuity in making food last, and in developing new ways of modifying dishes as served. Fluid intake rose so markedly that a limit of 9 cups of coffee daily was imposed; even so, many subjects brewed the strongest possible cups and increased the volume by dilution, or consumed the liquid portion of soup and then repeatedly added water to the solid residue. There was little tolerance or humour towards matters concerning food. Waste became a major crime, and lack of "seriousness" on the part of cooks and servers caused much irritation.

Emotional instability resulted from the stress, apathy being very marked except in relation to food and the experimental life, about which all interest tended to narrow. Irritability increased until it became an individual and group problem. Nervous tension was revealed also by increase of such habits as nail-biting, gum-chewing and smoking. Personal appearance was neglected though bathing remained popular since it provided warmth. Humour "dried up", and the tone of the group became sober and serious, apart from the exhibition of irony and sarcasm. Curious forms of acquisitive behaviour presumably compensated for food deprivation. Useless articles were bought and stored up, and the collection of food recipes became a fad. Intelligence, as tested, appeared to remain at its normal level; men often believed they had suffered intellectual deterioration, but this was due to narrowing of interests, apathy, and lack of initiative in conversation and study. During rehabilitation, energy and physical well-being increased roughly in proportion to calorie intake. Recovery from dizziness, apathy and lethargy was rapid, but tiredness, loss of sex drive, and weakness were slow to improve. Appetites remained insatiable for a long time, and habits such as plate licking and "toying" with food persisted. Many men became more depressed and irritable through a sense of disappointment at the failure of the expected "new lease of life" to materialise quickly. But discontent and aggressiveness replaced apathy and acquiescence, and gradually physical, social and cultural interests reappeared.

After 12 weeks of rehabilitation, 12 men remained under observation, but were allowed to eat as much as they liked at weekends. During these 2-day periods they ate more or less continuously, consuming 6,000 to 7,000 cal. daily. Manipulation of menus, licking of plates and intolerance of waste (despite obvious abundance) were still very noticeable. In general, the men ate more than they should have, and there were many instances of sleepiness and gastro-intestinal upset. (J. Clin Psychol 1948, 4, 28—45. (Lab. physiol, Hyg. Univ. Minnesota).

T. R. N.

Coir dust or cocopeat—A by-product of the coconut—E.P. Hume: During the separation of coconut fiber by machinery some very short fibres unsuited for cordage but well suited for manufacture of the door mats are produced. A by-product of the latter industry is a mass of tiny, brown, irregularly shaped, particles known as 'Coirdust'. Since the term 'dust' is misleading and the possibility of using this by-product in horticulture, the author has suggested instead the name 'coco-peat'. The meagre literatures chiefly from India and Ceylon dealing on this substance, recommend its use as a material for increasing organic matter in horticulture, as manure direct

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or as material to absorb the cattle urine and a bedding for stock. Its slow decomposition has also been noted. Only one author has dealt with its chemical aspect as fertilizer. He has shown that it has less than 1% of any major nutrient and is unfit as fertilizer and that its slow decomposition is due to its low pentosan lignin ratio (40% lignin : 12% pentosan). Its decomposition is hastened if materials like grass are increased. By adding even small quantities to sandy soils their moisture content is increased from 24 to 33.2%. By itself the dust can retain over 80% water on dry weight basis. A recent chemical analysis of this dust done in the U. S. A., is as follows :—

Mineral composition of 3 fresh samples of unscreened cocopeat.

Sample.	Ash. %	Ca. %	Mg. %	K. %	P. %	N. %
1.	2.39	0.42	0.63	0.82	0.07	0.11
2.	2.45	0.39	0.70	0.25	0.09	0.11
3.	2.48	0.31	0.65	0.84	0.02	0.11

A four year old, well-weathered sample also showed extremely little decomposition. It is fairly rich in iron and manganese (17 P. P. M. water-soluble manganese, 33 P. P. M. of exchangeable and 63 P. P. M. of reducible manganese; iron, 100 P. P. M. water-soluble, 78 P. P. M. exchangeable and 81 P. P. M. reducible iron.); slightly acid with a P.H. value of 5.7 to 6.7. Cocopeat is slow in decomposition, hence requires less frequent replenishing than other mulching materials and is generally mixed with soil by action of earthworms etc., eventually improving the soil. It has been found that cocopeat is not toxic but on the other hand stimulative to growth. The only difficulty with cocopeat as a mulching material is its light weight when dry. This could be easily overcome by preventing surface waterflow and also by a light dressing of sand on the top. This has a great advantage in being free of weed seeds. Cocopeat while conserving moisture in the soil also allows rapid penetration of even a small shower of rain. Mixed with heavy soil it improves its physical condition making it porous, and facilitating drainage and aeration. Mixed with sandy soil even in small percentage, the moisture content is improved. In top mulching of clay subsoil the cocopeat absorbs and holds most of the water and allows its penetration slowly. Cocopeat is also useful in propagating seeds and cuttings. It is best used mixed with equal parts of sand and compost. Its further use in horticulture has to be investigated. (Economic Botany 1942, Vol. 3, P. 42—48). N. K.

How Britain Plans to Raise Farm Production

20 per cent. increase by 1952

By

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The recent appeal to the nation by the Prime Minister of India, Pandit Nehru, for a concerted drive to tackle the food problem by producing 15 per cent more and becoming self-sufficient in food by 1951 finds a parallel in Britain. Farmers there have been asked by the Government to raise agricultural output by 20 per cent, by 1951-52. In the article below the author points out how they are planning to reach the target.

Although formers in Britain produce only for the home market they cannot, on the limited land available, grow enough food to feed a population of 50,000,000. In the year 1948-49, 49 per cent of her total food supplies, measured in protein, was imported and in terms of calories, 63 per cent.

When imports were severely cut during World War II because of shipping difficulties, the farmers of Britain made great efforts to fill the gap. Today even more food is called for, because the country can only afford imports to an amount which can be paid for by exports. The farmers, by growing more per acre, can help to save foreign currency so that enough is left to buy the raw materials which are indispensable to the industries which make goods for export and the home market.

The Government has asked farmers for a net output per acre in 1951-52, 20 per cent, higher than that of 1946-47. Wheat, eggs and pig meat are especially emphasized in this expansion programme, details of which are known throughout the farming community.

Advisory Services. Some part of the increased production will be achieved by better use of existing resources as technical knowledge spreads and less efficient farms are brought up towards the level of the best. The Government has set up advisory services to assist farmers and estate managers to make use of recent discoveries and new methods.

It is fully recognised, however, that if farmers lack the necessary resources they cannot raise the output. Land itself is much in demand for other uses besides agriculture, and although some reclamation and improvement of waste land will be possible, no extension of the total farm area can be hoped for. The present labour force is expected to be adequate, though it will still be necessary to find extra help at the busiest times.

The chief need is for equipment and supplies which will make labour more productive. More machinery, fertilizers and other supplies will have to be brought on to the farms, new farm buildings must be built, and old ones renovated and improved. Agriculture has to compete with many other industries for steel, timber and other materials used in construction and manufacture. The Government attempts to allocate supplies in proportion to the urgency of the various needs. Over the four years ending in 1952-53, £450,000,000 (Rs. 600 crores) will be spent on capital equipment for agriculture. Most of the money must come from farmers or landowners themselves.

Tenant Farmers. Over 60 per cent. of farm land in the United Kingdom is not owned by the farmers who occupy it. They pay an annual rent to the landowner. In return the owner has to provide all the fixed equipment (such as farm buildings, roads, fences, drains, and water supplies) which are necessary for efficient farming. He must keep this equipment in good repair and carry out such alterations and improvements as are needed. These obligations are laid down in the Agriculture Act of 1947, and failure to observe them may result in supervision, direction and even dispossession of the landowner. The long-term programme provides £24,000,000 (Rs. 32 crores) to be invested by private landowners in 1949, and this should rise to £30,000,000 (Rs. 40 crores) in 1951. New farm buildings—cow sheds, machine sheds, Dutch barns, and so on—will take up most of this expenditure, but many owners are also planning to build or repair farm-houses and cottages, and to improve drainage and the supply of water and electricity. New works actually undertaken in 1948 showed that owners were measuring up well to their part. Arrears of maintenance work are being wiped out. Rents are adjusted to include payment of interest on these improvements, for most landowners cannot finance the investment out of income. The £24,000,000 represents over half the total annual rent and is, of course, additional to normal expenses of management. Owners, therefore, have to borrow or draw on their capital. Bank advances for agricultural development have substantially increased in recent years.

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Increased Mechanisation. Farmers, on their part, have to provide the working capital which the programme demands. Over the next four years they will require new machinery and replacements costing about £. 50,000,000 (Rs. 66·67 crores) a year. Many tractors have been bought since 1939, though even at that time there were 60,000 in the U.K., or one to every 220 acres of arable land. Nearly all farms having 30 acres or more of arable land are now equipped with a tractor; most farms of over 200 acres have two; and it is quite usual to find three or four tractors, as well as five or six horses, on arable farms of 300 acres or more.

There is now almost enough power-driven machinery to carry out the increased cropping plans, and the present total of 260,000 tractors will not be increased beyond 300,000 during the four-years period. Purchases will mainly be replacements.

More than half the agricultural tractors in use in countries receiving Marshall Aid are in the United Kingdom. The other countries are pressing on with mechanisation. Norway, Sweden, Denmark, Switzerland, Ireland and Turkey all plan to have at least 20 per cent. more mechanisation in agriculture in 1950-51 than they had before the war. Mechanisation in the U. K. will make a major contribution to the increase in output per worker. The range of implements on the farm is continually widening. To handle the extra acreage of grain, 11,000 combine harvesters should be available in 1950, compared with 6,500 in 1948. New types of machines to deal with labour-costly root crops (especially potatoes and sugar beet) are expected to be brought in ever increasing numbers; while the campaign for extending the practice of grass drying should result in the use of at least 1,500 driers in 1950.

Price Fixation. Grass is still potentially Britain's richest crop, but farmers must buy at least 20 per cent more fertilizers and use a large part of this on pasture land. This will provide more feed for cattle, but increased quantities of imported feedingstuffs will have to be bought to establish and maintain much larger populations of pigs and poultry which are to be kept.

The cost of all these machines and supplies has been kept in mind by the Government when fixing the future prices which farmers will receive for their produce. These prices have been designed to allow a margin above the normal cost of production and sufficiently wide to enable farmers to meet the additional investment. Figures given by the Economic Commission for Europe show that in 1948 four per cent. of the gross investment in fixed capital in the United Kingdom took place in agriculture. In most countries of Europe, remarks the Commission, "the share of agriculture in total investment was not at all commensurate with the importance of agriculture in the national economy". Net investment in agriculture (excluding repairs and maintenance) was actually negative in some countries (such as Czechoslovakia and Bulgaria), but the figures may conceal an increase in numbers of livestock being carried. France and the United Kingdom, however, are singled out as showing "adequate appreciation in their plans of the importance of agricultural investment." (British Information Services.)

ERRATTA.

Vol. XXXVI No. 11.

1. Page 509 — Statement of Acidity lists — under "Butter" — item 3 (against 8 days storage) — last column (under Butter milk) — for 0·0937 substitute 0·1471. (The same figure 0·0937 is repeated twice. The first is correct, but the 2nd is wrong, which has to be corrected).
2. Page 510 — Line 31 — for 9·0536 substitute 0·0536.
3. Page 510 — Lines 38 and 39 — delete "flaccid at the end" (This not mentioned in the original).