the fertilisers used were at the following rate per acre:—Sulphate of potash, 320 lb; nitrate of soda, 480 lb; sulphate of magnesia, 208 lb; and bone superphosphate, 480 lb. They were weighed out into two equal portions, each containing its due weight of the above four substances. One of these portions, after being dissolved in distilled water, was mixed with one lot of soil, and to insure intimate distribution, this soil was divided into fourteen equal parts, with which was carefully incorporated a corresponding part of the solution. The soil was then again mixed, placed in a large shallow wooden case, divided into four sections, and the seeds were duly sown. To the other lot of soil similarly placed, the manures were applied in a dry state. Eight rows, 6 inches deep, were marked out to a depth of 4½ inches, and in each of these was carefully distributed an eighth part of the total portion of fertilisers. In adjacent parallel lines was sown the same number of seeds as in the other case.

Without entering into the minute details of the results obtained by M. Schloesing, he found, as regards the phosphoric and potassic manures that where they had been applied in rows, they had been utilised by the plants to a considerably greater extent; and that although this method caused the crops to ripen later, it increased their development, and in every case gave a greater yield. The percentage increase in the yield was as follows:—Wheat, 63 per cent; and Potatos, 26 per cent; Beans, 29 per cent; and Peas, 2·1 per cent. It should be added that the same kind of crop in each case was weighed on the same day, as soon as the earlier was considered ripe, so that this was to the disadvantage of the later crops, which even then gave the increase shown above.

A second series of experiments of the same nature was lately reported to the French Académie des Sciences, and is contained in one of the recent *Comptes Rendus*.

M. Prunet, confining his observations to the Potato, worked on a much larger area than M. Schloesing had done, one of his plots (B), being half a hectare (1·37 acre) in extent. Two kinds of soil of the following nature were selected:—

Soil.	Nitrogen.	Phosphoric Acid.	Potash	Lime.
Plot A (light soil)	contained } ·907	·695	2·64	17·0
Plot B (heavy soil)	per 1000 parts } 1·02	·954	1·83	2·67

Each plot was divided into three sections here called I., II., and III., for the sake of clearness. Section I. in each plot was left unmanured, and served as the control section. To Sections II. and III. manures were applied as follows:—

Nitrate of soda, at the rate of 120 lb per acre.

Sulphate of potash at the rate of 120 lb per acre.

Mineral superphosphate at the rate of 240 lb per acre.

In section II. of each plot the fertilisers were carefully mixed with the soil, but in III. they were placed in a line parallel to the tubers. The following table shows the calculated yield per acre of the crops in each section:—

		Ton.	cwt.	qr.	lb.
Plot A	Section I.	5	8	2	21
	,, II.	7	6	2	24
	,, III.	8	6	0	10
Plot B	Section I.	7	7	1	6
	,, II.	7	12	2	21
	,, III.	8	5	1	12

In each plot, therefore, the method of applying the manure in rows gave an increased yield per acre as under:—

	Ton.	cwt.	qr.	lb.
Plot A	0	19	1	14
Plot B	0	12	2	16

Without giving all the other detailed results, the following table shows the calculated weight of starch per acre contained in the tubers:—

		Ton.	cwt.	qr.	lb.
Plot A	Section I.	1	4	3	2
	,, II.	1	8	1	25
	,, III.	1	13	3	14
Plot B	Section I.	1	10	4	6
	,, II.	1	10	2	24
	,, III.	1	15	1	14

Showing an increased yield of starch of III. over II. as follows:—

	cwt.	qr.	lb.
Plot A	5	1	17
Plo B	4	2	18

From the experiments of Schloesing and Prunet, it appears, therefore, that phosphatic and potassic manures are better utilised by plants when applied in rows than when they are equally distributed in the soil. In the latter case their points of contact with the elements of the soil being innumerable, the precipitation of the fertilising principles is more rapid than when the contact is limited in extent. M. Prunet also observed that the roots attained a greater development near the lines of manure, and he corroborates what M. Schloesing had said of the fertilising elements required by plants, that large rations absorbed by even a few roots are of greater service to the plant than if even all the roots absorb small quantities.

It must, however, not to be forgotten regarding phosphatic and potassic manures, that their better utilisation when they are applied in rows also implies a greater drain on the soil, which will be left relatively poorer in these fertilising principles, a fact to be taken into consideration in manuring for succeeding crops.—B.—*Gardeners' Chronicle.*

THE COST OF STARTING A FRUIT FARM IN CALIFORNIA.

This is an important question to many, and while a larger capital is desirable, anyone possessing from £250 can make a very comfortable Home in California, and maintain himself and family with his chickens, cows, and annual crops, until such time as his trees and vines begin to bear. After the land has been selected the following details will give an approximate idea of the amount necessary to start a 20-acre fruit farm the first season, as per diagram in my pamphlet, which can be had on application.

The price of the land is from $60 per acre, which is about £12, and the terms of payment are one-quarter cash down, and the balance in the third, fourth, and fifth year, with interest on deferred payments. This arrangement enables the purchaser to realise on crops to make these payments.

Water, which is another factor in the success of this district, there is abundance of. It is derived from the Kern River, under a perfect system of irrigation comprising 350 miles of canals.

For the accommodation of all, the company undertake to furnish the best vines and fruit trees, and plant and cultivate the same with thorough attention for one year.

Thus a 20-acre fruit farm, which should bring in a net profit of from £20 to £60 per acre and more according to cultivation, would cost to have planted not including the house, and possibly some levelling as follows:—

	£	s	d
One quarter deposit on 20 acres, at $60 per acre, which at the English and American Exchange on money equals about	62	10	0
10 acres of raisin vines, cultivation and attention to same one year at $35 per acre, equal to	72	18	4
5 acres of fruit trees, 100 108 to the acre, cultivating and attention to the same one year at $15 per acre equal to	46	17	6
2½ acres of alfalfa at $10 per acre, equal to	5	4	2
Fencing 20 acres, about	20	16	8
Water gates, about	6	5	0
Management and superintendence first year	20	16	8
	£235	8	4

In addition to the above there may be some charge for levelling the land, but this is often unnecessary and can stand over.

The above particulars as cost for 20 acres are all that is necessary to introduce the subject, and give an idea for those going into the industry on a larger scale, according to the capital in hand and the income needed.

What to do with Our Boys.

And How Can a New Start be Made in Life?

The question of what to do with our boys is one that has long troubled parents, more especially those who, though of gentle birth and good connections, have not unlimited incomes. Where money is no object the difficulty is not great, but for those only able to spare a few hundreds, wherewith to give their youngsters a start in life the opportunities are not many. Owing to society prejudices there are many occupations that a well-bred son cannot follow in England were he willing, and as the amount of capital required in this country for anyone to turn gentleman-farmer is considerable, the prospects of fruit-farming in California are particularly attractive to this section of society. Sons of gentlemen can be boarded at the house of one of the settlers while their land is cultivated for them.

Profits of Fruit Culture.

The profits in this beautiful land of prosperity are most remarkable, from £20 to £60 per acre per annum, and more, according to the fruit grown, and the attention and care bestowed upon it.

Treating on the large profits of the Orange-Cling Peach, a special variety grown at Bakersfield, a statement is published by the Kern County Land Company, certified to as will be seen below. The statement in brief runs thus:—One orchard of 17 acres in which the oldest tree did not exceed six years in age, produced a gross income in the season of 1889 of over $9,000 (£1,800). The crop of 1890 was sold at prices realising a profit $150 (£30) to $300 (£60) per acre.

We certify that the above statement is not overdrawn, and is entitled to full credence in every particular:

Sol. Jewett, President Kern Valley Bank, Bakersfield, Cal.

E. M. Roberts, Chairman Board of Supervisors, Kern County, Cal.

A. R. Conkling, Judge, Superior Court.

W. R. McMurdo, County Surveyor, Kern County, Cal.

Geo. K. Ober, Postmaster, Bakersfield, Kern County, Cal.

H. Horace Clapham, Rector of St. Paul's Episcopal Church, Bakersfield, Cal.

Rev. J. H. Henry, Pastor Methodist Episcopal Church, Bakersfield, Cal.

Rev. J. C. Jordan, Pastor Baptist Church, Bakersfield, Cal.

S. W. Wible, Superintendent, Miller and Lux, Kern County, Cal.

Referring to the profit of French prunes, I have samples of this fruit in my own office from trees five years old, each tree bearing a crop of 1,000 lb. which would equal 48,400 lb of dried fruit to the acre; but perhaps the best evidence of the success of the undertaking is the pride and satisfaction of those who have embarked in this business under my auspices, as shown by their sending to their friends, at home sample boxes of raisins grown on their places within a period of 17 months, which is a wonderful evidence of the fertility of the soil.

The Cause of Success.

After buying the land we assume the responsibility of cultivating the same, finding good vines and trees and paying all attention in having the work done well, and further undertake to study the best markets; and now, as a further help, we are sending out responsible practical gentlemen for the erection of a factory for the manufacture of jams, jellies, and the preservation of fruit for market in all its branches.

Table showing estimated acres and capital needed first year to produce future proportionate income, calculating from £20 to £60 per acre profit:

Acres.	Capital needed. First year.	Estimated Income in full bearing.
20	£234	From £300
40	£455	do £600
60	£720	do £1,000
80	£999	do £1,400
100	£1,980	do £2,800

The above table provides for the one-fourth deposit for the purchase of the land at $60 (about £12) per acre, the balance being paid by arrangement, and provides also for vines, fruit trees, alfalfa (forage plant), planting, cultivating, and attention for the first year, also fencing and water-gates.—*Broad Arrow and Naval and Military Gazette.*

PRODUCTION OF COFFEE IN COSTA RICA.

The coffee plant was introduced in Costa Rica in 1796, and its cultivation there has been continuous since that time. The production, which has been gradually and constantly increasing under the Spanish occupation, and since the independence of the country, amounted to 5,000 tons in 1861, and 18,000 in 1884. In 1891, the exports of coffee amounted in value to nearly 6,150,000 dollars. Costa Rica coffee is of superior quality, and commands the highest prices in the market. The Bureau of the South American Republics has recently issued a report, from which it appears that in 1890 the census of Costa Rica showed the existence of 8,130 coffee plantations, with 26,558,251 trees. These plantations were situated at various altitudes, from 2,500 to 5,000 feet above sea level, but the best results are obtained at 4,000 feet. The method of rasing the young plants in nurseries, the distance at which they are planted, the preparation of the virgin lands for the plantations, and the subsequent cultivation of the trees, are the same as in the other coffee districts of the Western Continent. The seed beds are sown in May, and in the same month of the following year are set in the plantations. At the end of two years a few berries will be produced, the first regular crop being harvested the following season. The cultivation of other crops between the rows while the trees are young, is practised to some extent, as elsewhere; the banana, or a quick-growing tree called *poro blanco*, being used to shade the young plants. The average annual cost per acre of working a coffee plantation after it comes into bearing is estimated at about six dollars, and the annual yield is put at an average of 2,500 pounds per acre. The gathering of the berry, which lasts from December to March, is done by women and children, who pick the berries and place them in baskets, holding from eighteen to twenty quarts. The gatherers are paid about sixpence per basket, and active workers can fill eight to ten baskets per day. The provinces of San Jose Alajuela, Cartago, and Heredia are those in which the cultivation of coffee is most extensively carried on; and in all these, except Cartago, the greater part of the available lands are already occupied by plantations. A vast extent of excellent coffee lands is found on the Atlantic side of the country between Cartago and Reventazon, and are said to be even better than those of Heredia and San Jose. The Costa Rican Government encourages the settlement of foreigners in the country, to engage in agricultural pursuits, and offers lands at very low prices, considering the great productiveness of the soil. Public lands may be acquired by pre-emption, in tracts of not less than 120 acres, by merely fencing them, and giving notice to the authorities of the intention of the occupant to put them under cultivation. If the cultivation be carried on for two years, a patent of ownership will be issued to the holder, and he may enclose, and claim in the same manner, another 120 acres, and so on. Lands may also be purchased, in areas not to exceed 1,500 acres for each person, at public auction, at prices varying from 3s. 4d. to 8s. per acre, according to