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TAMIL NADU ARCHIVES

GOVERNMENT OF TAMIL NADU

Revenue DEPARTMENT

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2092

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2092
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GOVERNMENT OF MADRAS.
REVENUE DEPARTMENT.

23rd June 1877, No. 2,092.

Famine Relief.

Read the following paper:—

No. 511. From Surgeon-Major W. R. CORNISH, F.R.C.S., Sanitary Commissioner for Madras, to J. H. GARSTIN, Esq., Additional Secretary to Government, Revenue Department, dated Madras, 30th May 1877.

In the *Gazette of India* of the 19th instant, I observe a further communication from the Hon. Sir R. Temple, *Bart.*, K.C.S.I., in regard to the sufficiency or otherwise of one pound of grain as the basis of wages for adults on famine relief-works. The letter to which I refer (No. 340-E of the 10th May 1877) is accompanied by a "Memorandum" drawn up by Surgeon-Major J. B. Lyon, F.C.S., Chemical Analyser to the Government of Bombay, and to which Memorandum is appended numerous tables for the construction of dietaries for natives of India, according to the weights of individuals.

2. I would crave the permission of His Grace in Council briefly to state that, in my opinion, the data of Surgeon-Major Lyon's paper do not justify the conclusion which Sir Richard Temple has founded on it, viz., that "a ration based on a pound of grain is sufficient for the sustenance of persons not performing severe labor." I cannot find any statement in Mr. Lyon's paper in which he expresses such an opinion in words, although a casual reader may perhaps draw some such conclusion from his figures.

3. In all the scales of diet drawn up by Surgeon-Major Lyon he has proceeded on the assumption that "there is no theoretical objection to the proposition, that the quantity of food required by adults is proportionable to their weight, provided, of course, always that the quantity of work expected from them is likewise proportioned to their weight." This method of procedure is, in my opinion, extremely fallacious, and I shall briefly show why any scale of diet drawn up in furtherance of this view must be received with the greatest caution.

4. Surgeon-Major Lyon argues that a human being requires food in exact proportion to his weight, and he has furnished tables showing, according to this theory, the quantities of nitrogenous and carboniferous food necessary for the sustenance of persons weighing from 80 to 150 lbs., under the different conditions of hard labor, light labor, and complete rest.

5. If there was any relation between the weight of an individual and his capacity for assimilating food, and effecting work requiring expenditure of force, there might be some show of reason for laying down a principle that men require food in proportion to their weight. But we know, as a fact, that there is no such correspondence—that in a very considerable number of persons, the power to work diminishes as the body increases in weight, notably in those who, with increasing years, tend to develop fat instead of muscle.

6. The every-day experience of the most superficial observer must afford instances of persons of large appetite who never get fat, and of persons, who are not large eaters, who lay on an amount of flesh that becomes a serious burden and inconvenience to them, and with regard to these persons, it is apparently seriously proposed by the Chemical Analyser to the Government of Bombay, that they should be fed, the thin and the stout alike, in proportion to their weight. The mere statement of the proposition in this form is sufficient to show that, witho

being hedged in by important qualifications, the theory cannot be applied in practical dietetics.*

7. The theory that work can be performed in proportion to weight is still more wide of the field of practical observation. According to this theory "The Claimant," who weighed 22 stones on going to jail, was then more fit to endure hard labor than he was six months after, when he had lost one-fourth of his weight, and athletes instead of striving to keep their weight down, ought, according to this theory, to take means to lay on extra flesh. There is, in fact, no relation between the ability and capacity for labor and mere weight of body as Mr. Lyon would seem to suggest.

8. There are so many things more important than weight of body, bearing on the necessity for food, that it is surprising to find a chemist in these days laying so much stress on *weight* as the principal factor in determining the quantities of food necessary for health and strength. One might think that questions connected with the idiosyncrasies of the individual, his age, race, temperament, habit of body, slowness or rapidity of vital changes, were to be set aside as of no value in comparison with a theory that the body needs sustenance in proportion to its bulk. I suppose Mr. Lyon would admit that a very different amount of nutriment is needed for a spare man of large frame and without fat, and another of equal weight, but whose size depended on an abnormal deposition of fat in his tissues, yet this weight theory makes no distinction between the requirements of the two.

9. Mr. Lyon has taken 150 lbs. as the average weight of male Europeans, and 105 lbs. as the average weight of natives of India. According to Sir R. Christison's experiments in Perthshire, the average weight of Scotchmen was 140 lbs., and from some experimental measurements and weighings made of various castes by Dr. John Shortt in Madras some years ago, he found that the average weight of male adults of the fishermen, Boyas, and other laboring castes was about 120 lbs., and of certain other castes from 114 to 118 lbs. It would seem, therefore, that as regards the classes of persons suffering from famine in this part of India, there is not that great difference in weight and bulk of the people as a whole, which would justify a very marked reduction of food in comparison with European diets.

10. The argument in regard to food and average weight and bulk of the body must not be pushed too far. With certain limitations it must be admitted as useful in the construction of dietaries, but after all, the facts of most importance are (1) the habits of the people themselves in the choice of food, its nature and amount; and (2) the daily waste which the body suffers from vital changes. Observations on the former head are sufficiently accurate, but in India we have never had any scientific determination of the daily waste of the body under strictly defined conditions of diet and labor. The subject is so important that I hope some of our scientific officers who have leisure and means of observation will take it up and

* NOTE.—The physiological needs of men, whose tendency it is to clothe themselves with flesh and of those who remain thin and spare in spite of all the food they consume, are essentially different. The two types and their personal characteristics have been well defined by Shakespeare who makes Julius Caesar say to Mark Antony—

Ces.—"Let me have men about me that are fat;
Sleek-headed men, and such as sleep o' nights.
Yond' Cassius has a lean and hungry look,
He thinks too much; such men are dangerous."

Ant.—Fear him not Caesar, he's not dangerous!

Ces.—"Would he were fatter!
I do not know the man I should avoid
So soon as that spare Cassius. He reads much;
He is a great observer, and he looks
Quite through the deeds of men: he loves no plays

As thou dost, Antony! he hears no music!
Seldom he smiles, and smiles in such a sort,
As if he mocked himself, and scorned his spirit
That could be moved to smile at anything.
Such men as he be never at heart's ease,
Whilst they behold a greater than themselves,
And therefore are they very dangerous."

let us know if there be any truth in Sir Richard Temple's surmise, that natives of India excrete less nitrogen in proportion to weight, food, and exercise, than the European races do.

11. There can be no question as to the capacity of the laboring classes of India for hard work, provided they get food in amount and quality to satisfy their necessities. While our streets are lined with miserable scare-crows of humanity, who have scarcely vitality enough to drag themselves along, there may be seen on the Madras beach magnificent specimens of working men, whose strength and powers of endurance are not to be surpassed by the like qualities of any other class of people in the world.

12. A common task of four men is to take from the beach and load on a hand-cart 22 bags of rice, each bag weighing 164 lbs. This load they push or drag to the railway station, distant more than 2 miles, unload, returning empty to the beach. Four or five trips of this kind go to an average day's work.

In carrying rice bags from the beach to merchants' ware-houses, I find that an average cooly will take up a bag weighing 164 lbs., carry it from 60 to 100 yards over loose, heavy sand, and a further distance of 30 or 40 yards on good road and up a flight of steps to a loft, and that he will manage 100 of these trips in a day.

13. Work of this nature, I need not observe, is not performed on famine wages, even of the highest scale. A cooly engaged in carrying rice from the beach to ware-houses, or from the beach to the railway station, can earn one rupee, or even $1\frac{1}{4}$ rupee a day, and his diet includes a plentiful supply of meat or fish and ghee, in addition to his rice and curry. Those interested in the study of Dynamics might work out the number of "foot tons" lifted or moved in the course of a day by the Madras beach coolies, and from this data estimate the amount of food necessary for the production of the requisite force, but practically we know that labor of this class can only be followed by those in full strength and health, and that it could not be accomplished without a liberal diet, such as men earning a rupee a day can well afford themselves.

14. I observe that Surgeon-Major Lyon bases his tables of diets on the experience of the Bombay House of Correction, where it is stated that the prisoners on hard labor gained in weight on the average 1 lb. 10½ oz. each, while existing on the scale of food for laboring prisoners. I admit that the increase or decrease in weight of the people subjected to a dietary with certain reservations and limitations, affords indications of value regarding the sufficiency of the food, but the weight record alone is only a portion of the evidence necessary. Surgeon-Major Lyon says nothing about the sickness and mortality of the prisoners in the Bombay House of Correction. It would be essential to know to what extent they suffered from bowel disorders, anæmia, scurvy, and other diseases of innutrition, as well as the general rate of mortality, before coming to the conclusion that the hard labor scale of diet was actually sufficient to keep the people in ordinary health. As regards the proposed diets, for those on light labor and those doing nothing at all, there appears to be no practical evidence whatever to prove their sufficiency or insufficiency, and all that can be said of such scales is that they are based on a theory which in some respects has been shown to be fallacious.

15. As a matter of fact and excluding all theory whatever, we have ascertained in certain Madras Jails, that where punishment by restrictions in food, so as to reduce the daily amount of nitrogen to much less than 200 grains, has been persevered in for any length of time, there has been loss of strength, loss of health and sacrifice of life, and this knowledge would make me very sceptical as to the sufficiency of a "bare subsistence" diet containing only 136.7 grains of nitrogen, such as Mr. Lyon now proposes. In his table of "Food Equivalents," published a few years ago, I observe that Mr. Lyon was more liberal in his views, for he there speaks of 200 grains of nitrogen and 3,070 grains of carbon as "almost a starvation

diet." Certainly without the most cautious experimental tests, a dietary like the No. 3 scale of Mr. Lyon would never commend itself to those practically acquainted with the subject of the connection of food with vital force, and based, as it is, on mere theory, I think it is to be regretted that a subsistence ration, ranging in nitrogen from 104.2 to 195.3 grains according to the weight of the individual, was ever seriously put forward as a practical guide for those dealing with famine relief.

16. There is one other point requiring a cursory notice. Mr. Lyon proposes to eke out the deficient nitrogen of various cereal grains by the addition of pulse, so as to make the total nitrogen of the food equivalent to the needs of the body, as reckoned by the weight theory.

To take, for instance, the case of an obese native merchant accustomed to feed on rice and sentenced to hard labor. His daily diet would be made up of 21 ounces of rice and 9.55 oz. of gram or dhal. In all probability he would be unused to the latter food, and certainly, under no circumstances, could he digest and assimilate the nutriment contained in 9.55 ounces of that grain in the course of 24 hours. If he failed to digest the dhal the nitrogenous principles of it could in no way assist in the nutrition of the body. In these proposed dietaries Mr. Lyon has, in fact, omitted the very necessary caution enjoined in his former paper on "Food Equivalents." "Regard should always be paid to the relative proportions in which, by custom or habit, articles of food are consumed by a population. This often indicates a limit of digestibility which ought not to be greatly exceeded."

17. The present period of famine is presenting many opportunities for the study of those conditions of the body induced by privation of food. And the more this subject is considered, the more important does it become that we should follow only sound and true principles in dealing with questions connected with the food of a community.

18. A careful study of the condition of the people who have been subjected to slow starvation shows that there is a point in the downward progress of such cases, from which there is no possible return to health and strength. Food of the most nutritious character and in the greatest profusion is then powerless to save life. Chemical theories as to the composition of food do not in the least help us to explain why people should die with an abundance of nutritious food within reach, but if we carefully examine the bodies of those who have died of this form of starvation, we shall find that the delicate structures engaged in the assimilation of nutriment from food have wasted (owing probably to insufficient use) and undergone degenerative changes, so as to unfit them for their peculiar office. It has been my painful duty to observe, not one or two but many thousands of such cases within the last few months, and I need not say that the contemplation of the causes leading to these slow, but almost certainly fatal, changes in the assimilative structures of the human body, lead me to look with very grave suspicion upon all proposals for "bare subsistence" dietaries; and especially when such proposals are known to be out of harmony with the natural habits and customs of the people to whom they are proposed to be applied.

19. This is not the time, nor the occasion, to review the practical effects of Sir Richard Temple's experiment in reducing the famine-wages of the people to the basis of one pound of grain, but this much may be stated, that the recent experience of nearly every famine officer who has observed the practical effects of the reduced wages, has led him to believe and publicly record his opinion that the subsistence scale of wages was perilously low. While as regards our destitute poor in relief camps we have had too abundant evidence of the fact, that a more liberal scale of food than that purchasable for a famine relief wage is inadequate to restore health or to arrest decay.

ENCLOSURE No. 1.

APPENDIX

Memorandum by Surgeon-Major J. B. LYON, F.C.S., Chemical Analyser to Government, Bombay, dated 7th May 1877.

DURING the year 1876, 534 native prisoners (all on hard labor) were discharged from the Bombay House of Correction. Their average weight on admission was 105 lbs. = 7 stones 7 lbs. On discharge they were found to have gained in weight on an average 1 lb. 10½ oz. each. Their daily diet while in jail is shown at (a) Table I, its value in nitrogen and carbon, calculated by the factors given in Table II, is, as shown (Table III) (a), nitrogen 201.6 grains, carbon 4,011 grains daily.

These quantities of nitrogen and carbon are very much less than the quantities laid down by authorities as requisite for a European of average weight in moderate work. Thus many authorities estimate the quantities required by a European, of average weight in moderate work at about nitrogen 300 grains, carbon 4,850 grains daily (see Table IV, 1 and 2). Letheby, taking a mean calculated from the researches of various physiologists, estimates the quantities required by a European male adult of average weight on ordinary labor as nitrogen 307 grains, carbon 5,688 grains (Table IV, 3). The hard-labor diet of English convicts contains nitrogen 281 grains, carbon 5,140 grains per diem (see Table IV, 10).

The experience of the Bombay House of Correction that native prisoners at hard labor gain weight on a diet containing less nitrogen and carbon than the quantities laid down by authorities as requisite for European adults of average weight in moderate work is confirmed by the experience of the jails of the Hyderabad Assigned Districts. The hard-labor diet of these jails is shown in Table I (b), and its value, nitrogen 230.5 grains, carbon 4,600 at Table III (b). On this diet, the lowest, except the Bombay House of Correction diet, of the hard-labor "diets of the Indian jails, the prisoners are found to be very healthy." Again, the new scale for all Indian jails proposed by the Jail Conference recently assembled at Calcutta, * (Table I (c)), values (see Table III (c)) nitrogen 213.2 grains carbon 4,454 grains.

Considering together the experience of the Bombay House of Correction and the experience of the Hyderabad Assigned District Jails, and considering also this proposal of the Jail Conference which, it may be presumed, is founded on the experience of officers well qualified to judge of the requirements of native prisoners, there seems to be no doubt but that hard-labor prisoners in Indian jails require a diet containing less carbon and nitrogen than the amounts laid down by authorities as required by Europeans of average weight in moderate work. There thus appears to be a difference between Indian experience and European authorities.

If, however, the weight of natives of India as compared with Europeans is taken into account, this apparent difference practically disappears, for taking the Bombay House of Correction diet, shown by experience to suffice for laboring prisoners averaging 105 lbs. in weight, and raising its value in the proportion of 105 to 150, the quantities become nitrogen 288 grains, carbon 5,730 grains, quantities not greatly different from—1, Letheby's estimate for ordinary labor (Table IV, 3), viz., nitrogen 307 grains, carbon 5,688 grains, and 2, the value of the hard-labor diet of English convicts (Table IV, 10), viz., nitrogen 281 grains, carbon 5,140 grains. The proportion 105 to 150 is employed, because, while the average weight of the prisoners discharged from the Bombay House of Correction in 1876 was on admission 105 lbs., the average weight of a European male adult is given by most authorities as 150 lbs.

There certainly appears to be no theoretical objection to the proposition that the quantity of food required by adults is proportionate to their weight, provided, of course, always that the quantity of work expected from them is likewise proportioned to their weight. In order, however, to place the three diet scales, I now propose (see Tables V to IX) as much as possible on the basis of experience, I take as the foundation of the scales the experience of the Bombay House of Correction, viz., that native prisoners averaging 105 lbs. in weight did well at jail labor on a daily diet containing nitrogen 201.6 grains, carbon 4,011 grains. From this I derive the three proposed scales as follows:—

1. *Scale No. 1.*—The labor scale is simply the Bombay House of Correction scale, raised and lowered proportionally to the weight of the individuals to be fed.
2. *Scale No. 2.*—The light labor scale is Scale No. 1, reduced in the same proportion as Table IV, 12, is lower than English convict hard-labor diet (Table IV, 10).

* Surgeon-Major Lyons is under some misapprehension here. The Jail Conference did not lay down anything beyond a maximum of grain, leaving the quantity of pulse or animal food to be adjusted according to local usages.

3. *Scale No. 3.*—The bare sustenance scale is Scale No. 1, reduced in the same proportion that a mean between Edwin Smith's and Letheby's estimates for bare sustenance (Table IV, 16 and 17) is lower than English convict hard-labor diet (Table IV, 10).

On these three scales the quantities of nitrogen and carbon required daily by men averaging 105 lbs. in weight is in grains (Table V):—

		Nitrogen.	Carbon.
On Scale No. 1, Labor	...	201.6	4,011
Do. " 2, Light labor	...	173.6	3,528
Do. " 3, Bare sustenance	...	136.7	3,195

These quantities are represented respectively by the following weights in ounces, (a) of jowari and pulse, (b) of bajri and pulse, plus in each case, half an ounce of fat:—

		Jowari.	Pulse.	Total.
(a) Scale 1, Table VII, Columns 3 and 6	...	16.98	5.62	22.60
" 2, " VIII, " " "	...	15.08	4.68	19.76
" 3, " IX, " " "	...	15.23	2.56	17.79
		Bajri.	Pulse.	Total.
(b) Scale 1, " VII, Columns 3 and 9	...	18.60	4.00	22.60
" 2, " VIII, " " "	...	16.50	3.26	19.76
" 3, " IX, " " "	...	18.67	1.12	17.79

The tables alluded to are published in the *Gazette of India* of 19th instant.—W. R. C.

(True Copies.)

(Signed) J. H. GARSTIN,
Additional Secretary to Government.

Edw. A. Grubert.

REVENUE DEPARTMENT,
FORT ST. GEORGE,
23rd June 1877.

No. 512.

Famine Relief.
(No. 2,092.)

To

THE ADDITIONAL SECRETARY TO THE
GOVERNMENT OF INDIA,
DEPARTMENT OF REVENUE,
AGRICULTURE, AND COMMERCE.

Miscellaneous.

SIR,—I am directed by His Grace the Governor in Council to forward, for the information of His Excellency the Viceroy and Governor-General in Council, the enclosed copy of a letter from the Sanitary Commissioner of Madras containing observations on Surgeon-Major Lyon's Memorandum of the 7th May 1877, published at page 1401 of the Supplement to the *Gazette of India*; and to request that, with His Excellency's permission, the enclosed letter may also be published in the said Gazette.

I have the honor to be,

Sir,

Your most obedient servant,

(Signed) J. H. GARSTIN,
Additional Secretary to Government.

Edw. A. Grubert.

✓
Agriculture (1877) Department.

Government of Fort St. George.

Dated 23rd June 1877. } No. 2,092.
Received } Enclosures.
} 3 spare copies.

L. No.	No.
D. No.	Progs.

FAMINE RELIEF, No. 1349.

FORWARDING copy of a letter from the Sanitary Commissioner of Madras, containing observations on Surgeon-Major Lyon's Memorandum, published in the Gazette of India relating to tables for the construction of dietaries for natives of India, according to the weights of individuals, and requesting its publication also in the same Gazette.

2092
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REVENUE DEPARTMENT.

7 No. 4430

From Surgeon Major W. R. Cornish, F.R.C.S.

Dated 30. May 1877.

FOR ORDERS.

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1876 Mr. H.
Orders' letter

FOR ORDERS.

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No. 511
OFFICE OF SANITARY COMMISSIONER,
MADRAS, 30th May 1877.

FROM

THE SANITARY COMMISSIONER,
for Madras,

To

THE ADDITIONAL SECRETARY
to Government, Revenue Department.

SIR,

In the "Gazette of India" of the 19th instant, I observe a further communication from the Hon'ble Sir R. Temple, Bart., K.C.S.I., in regard to the sufficiency or otherwise of one pound of grain as the basis of wages for adults on famine relief works. The letter to which I refer (No. 340E of the 10th May 1877) is accompanied by a "Memorandum" drawn up by Surgeon-Major J. B. LYON, F.C.S., Chemical Analyser to the Government of Bombay, and to which Memorandum is appended numerous tables for the construction of dietaries for natives of India, according to the weights of individuals.

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3. In all the scales of diet drawn up by Surgeon-Major Lyon, he has proceeded on the assumption that "there is no theoretical objection to the proposition, that the quantity of food required by adults is proportionable to their weight, provided, of course always that the quantity of work expected from them is likewise proportioned to their weight." This method of procedure is in my opinion extremely fallacious, and I shall briefly show why any scale of diet drawn up in furtherance of this view must be received with the greatest caution.

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14. I observe that Surgeon-Major Lyon bases his tables of diets on the experience of the Bombay House of Correction, where it is stated that the prisoners on hard labor gained in weight on the average 1 lb. 10 $\frac{1}{2}$ oz. each, while existing on the scale of food for laboring

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prisoners. I admit that the increase or decrease in weight of the people subjected to a dietary, with certain reservations and limitations, affords indications of value, regarding the sufficiency of the food, but the weight record alone is only a portion of the evidence necessary. Surgeon-Major Lyon says nothing about the sickness and mortality of the prisoners in the Bombay House of Correction. It would be essential to know to what extent they suffered from bowel disorders, anemia, scurvy and other diseases of innutrition, as well as the general rate of mortality, before coming to the conclusion, that the hard labor scale of diet was actually sufficient to keep the people in ordinary health. As regards the proposed diets, for those on light labor and those doing nothing at all, there appears to be no practical evidence whatever to prove their sufficiency or insufficiency, and all that can be said of such scales is that they are based on a theory, which in some respects has been shown to be fallacious.

15. As a matter of fact and excluding all theory whatever, we have ascertained in certain Madras Jails, that where punishment by restrictions in food, so as to reduce the daily amount of nitrogen to much less than 200 grains, has been persevered in for any length of time, there has been loss of strength, loss of health, and sacrifice of life, and this knowledge would make me very sceptical as to the sufficiency of a "bare subsistence" diet, containing only 136.7 grains of nitrogen, such as Mr. Lyon now proposes. In his table of "*Food Equivalents*," published a few years ago, I observe that Mr. Lyon was more liberal in his views, for he there speaks of 200 grains of nitrogen, and 3,070 grains of carbon, as "almost a starvation diet." Certainly without the most cautious experimental tests, a dietary, like the No. 3 scale of Mr. Lyon, would never commend itself to those practically acquainted with the subject of the connection of food with vital force, and based as it is on mere theory, I think it is to be regretted that a subsistence ration, ranging in nitrogen from 104.2 to 195.3 grains

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according to the weight of the individual, was ever seriously put forward as a practical guide for those dealing with famine relief.

16. There is one other point requiring a cursory notice. Mr. Lyon proposes to eke out the deficient nitrogen of various cereal grains by the addition of pulse, so as to make the total nitrogen of the food equivalent to the needs of the body, as reckoned by the weight theory.

To take, for instance, the case of an obese native merchant accustomed to feed on rice, and sentenced to hard labor. His daily diet would be made up of 21 ounces of rice, and 9.55 oz. of gram or dhal. In all probability he would be unused to the latter food, and certainly, under no circumstances, could he digest and assimilate the nutriment contained in 9.55 ounces of that grain in the course of 24 hours. If he failed to digest the dhal the nitrogenous principles of it could in no way assist in the nutrition of the body. In these proposed dietaries Mr. Lyon has, in fact, omitted the very necessary caution enjoined in his former paper on "*Food Equivalents*." "Regard should always be paid to the relative proportions in which, by custom or habit, articles of food are consumed by a population. This often indicates a limit of digestibility which ought not to be greatly exceeded." ed.

17. The present period of famine is presenting many opportunities for the study of those conditions of the body induced by privation of food. And the more this subject is considered, the more important does it become that we should follow only sound and true principles, in dealing with questions connected with the food of a community.

18. A careful study of the condition of the people who have been subjected to slow starvation, shows that there is a point in the downward progress of such cases, from which there is no possible return to health and strength. Food of the most nutritious character, and in the greatest profusion, is then powerless to save life. Chemical theories as to the com-

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position of food, do not in the least help us to explain why people should die, with an abundance of nutritious food within reach, but if we carefully examine the bodies of those who have died of this form of starvation, we shall find that the delicate structures engaged in the assimilation of nutriment from food, have wasted (owing probably to insufficient use) and undergone degenerative changes, so as to unfit them for their peculiar office. It has been my painful duty to observe, not one or two but many thousands of such cases, within the last few months, and I need not say that the contemplation of the causes leading to these slow, but almost certainly fatal, changes in the assimilative structures of the human body, lead me to look with very grave suspicion upon all proposals for "bare subsistence" dietaries; and especially when such proposals are known to be out of harmony with the natural habits and customs of the people to whom they are proposed to be applied.

19. This is not the time, nor the occasion, to review the practical effects of Sir Richard Temple's experiment in reducing the famine-wages of the people to the basis of one pound of grain, but this much may be stated, that the recent experience of nearly every famine officer who has observed the practical effects of the reduced wages, has led him to believe, and publicly record his opinion, that the subsistence scale of wages was perilously low. While as regards our destitute poor in relief camps we have had too abundant evidence of the fact, that a more liberal scale of food than that purchasable for a famine relief wage, is inadequate to restore health, or to arrest decay.

I have, &c.,

(Signed) W. R. CORNISH, F.R.C.S.,

Sanitary Commissioner for Madras.

APPENDIX

Memorandum by Surgeon-Major I. B. Lyon, F. C. S.,
Chemical Analyser to Government, Bombay,
dated 7th May 1877.

During the year 1876, 534 Native prisoners (all on hard labour) were discharged from the Bombay House of Correction. Their average weight on admission was 105 lbs. = 7 stone 7 lbs. On discharge they were found to have gained in weight on an average 1 lb. 10½ oz. each. Their daily diet, while in Jail, is shown at (a) Table I., its value in nitrogen and carbon, calculated by the factors given in Table II., is, as shown (Table III. (a)), nitrogen 201.6 grains, carbon 4,011 grains daily.

These quantities of nitrogen and carbon are very much less than the quantities laid down by authorities as requisite for a European of average weight in moderate work. Thus many authorities estimate the quantities required by a European, of average weight in moderate work at about nitrogen 300 grains, carbon 4,850 grains daily (see Table IV., 1 and 2). Letheby, taking a mean calculated from the researches of various physiologists, estimates the quantities required by a European male adult of average weight on ordinary labour as nitrogen 307 grains, carbon 5,688 grains (Table IV., 3.) The hard labour diet of English convicts contains nitrogen 281 grains, carbon 5,140 grains per diem (see table IV., 10.)

The experience of the Bombay House of Correction that Native prisoners at hard labour gain weight on a diet containing less nitrogen and carbon than the quantities laid down by authorities as requisite for European adults of average weight in moderate work, is confirmed by the experience of the Jails of the Hyderabad Assigned Districts. The hard labour diet of these Jails is shown in Table I. (b), and its value, nitrogen 230.5 grains, carbon 4,600 at Table III. (b). On this diet the lowest, except the Bombay House of Correction diet, of the hard labour "diets of the Indian Jails, the prisoners are found to be very healthy." Again the new scale for all Indian Jails proposed by the Jail Conference recently assembled at Calcutta, (Table I. (c)), values (see Table III. (c)) nitrogen 213.2 grains, carbon 4,454 grains.

Surgeon Major Lyon is under some misapprehension here. The Jail conference did not lay down anything beyond a maximum of grain leaving the quantity of pulse or animal food to be adjusted according to local usages.

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From

Major
SURGEON W. R. CORNISH, F.R.C.S.,
SANITARY COMMISSIONER,
for Madras.

To

THE ADDITIONAL SECRETARY
to Government, Fort St. George.

Dated 30th May, 1877.

Recd 9/6/77. 201

Stating his opinion that the data of Surgeon
Major Lyon's tables for the construction of diet-
aries according to the weights of individuals do
not justify the conclusions founded on them by
Sir Richard Temple.

cc to be forwarded

Lawrence Asylum Press - 1877.

C13-6-77 R19-6-77 R21-6-77 R23-6-77

Received
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To add
To be sent to the Govt of
India.
Dep't of A. R. & C.

Sir.

I am directed by
His Grace the Governor
in Council to forward
for the information of
His Excellency the
Viceroy & Governor Genl.
in Council the enclosed
copy of a letter from
the San. Comm. of
Madras containing
observations on
Surgeon Major Lyon's
tables of 1874.
by 1/77, published
page 1407 of the Gazette
of India, & to request
that, with the sanction
of the Govt, the
publication in the India
Gazette.

20/6/77 JH
20 June 1877

Draft
for
approval

Dr. Smith