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**FOOD AND DIET . . .**  
**IN**  
**THE MOURYAN EMPIRE**

BY  
"KRISHIVALA"



**PUBLISHERS :**

**MADRAS CHAMBER OF AGRICULTURE**

**16, BROADWAY, MADRAS**

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C. III fe. 78.

# FOOD AND DIET IN THE MOURYAN EMPIRE

(FOOD FRONT IN ANCIENT INDIA)

COMPREHENSIVE PLANNING AND EFFECTIVE  
ORGANISATIONS FOR OPTIMUM PRODUCTION,  
REGULAR COLLECTION AND EQUITABLE  
DISTRIBUTION OF AGRICULTURAL PRODUCE  
AND OTHER FOOD STUFFS.

*(Based on a study of Kautilya's Artha Shastra)*

BY

*"Krishivala"*

MADRAS CHAMBER OF AGRICULTURE PUBLICATION

94846 (7)

DEDICATED

AS A TOKEN OF GRATITUDE

TO

**Sri Bezwada Ramachandra Reddy Garu, C.B.E.,**

Ex-President, Madras Legislative Council,

President, Madras Chamber of Agriculture,

Patron of Culture.

## FOREWORD

To-day, the problem of food has become one of the most complicated problems in our country. But the problem itself is an old one. It has always been with us. The difference, however, is that in ancient and medieval times, Governments undertook systematic measures to grapple with it and solve it. No such importance was attached to it by the administrators of modern times. We are now reaping the evil consequences of their negligence.

The author of this pamphlet is not only an authority on modern systems of nutrition and health but has been conducting researches into theories and practices affecting Nutrition and Health of our country in the days of the Hindu and Muslim Rule. For fifteen years, he has been engaged in this work and has collected a lot of material throwing a flood of light on conditions in the past. It is only a small fraction of the results of his researches that he has given to the public in this pamphlet. More is still to come.

Kautilya's '*Arthashastra*' is the greatest of our ancient treatises on Public Administration. The author has done well in bringing to the notice of the public

what that great Statesman and administrator had to say on the subject under reference. Rulers to-day have a great deal to learn from him. The pamphlet is sure to be of great service to them in this direction.

MADRAS.

21st October '46.

M. VENKATARANGAIYA.

*Retired Professor of Politics  
Andhra University, Waltair.*

## INTRODUCTION

*“ Yet the past is ever with us and all that we are and that we have, comes from the past. We are its products and we live immersed in it. Not to understand it and feel it as something living within us is not to understand the present. To combine it with the present and extend it to the future, to break from it where it cannot be so united to make of all this, the pulsating and vibrating materials for thought and action....that is life.”*

### “DISCOVERY OF INDIA”

*By Jawaharlal Nehru.*

Food was prized and sung in verse and prose by the Vedic Indians as the fuel of life or source of strength and activity. The Aranyakas and Upanishads contain stray references to the vital role of food even in the life of sages and hermits. The Dharma sastras deal with the types of foods to be offered to Pitris (departed souls) and with the menus for sacrificial feasts. The Epics, the Buddhistic lore and the Jaina literature give many peeps into the food habits of the society, the field work of the agriculturist, the grains and pulses of the tradesmen, the family larder, and

kitchen, the Epicure's dinner table and the beggar's bowl. But the over—all picture that emerges in all these epochs is one of plenty for all—the rich and the poor, the king or sage or the worker. It may be said that the older administrative units were small kingdoms. But the Mouryan Empire, was very extensive, covering almost the whole of India, except a portion to the South of Madras. The ancient Greek visitors and writers were all impressed with the prosperity and the abundance of food supplies in the country.

Megasthenes, who was an Ambassador from Seleukos Niketor to the court of Chandragupta Mourya, between the year 302 and 288 B. C., wrote of India as a land of plenty. India supplied food in unsparing profusion. Its soil produced all kinds of fruits. In addition to cereals there grew in India much millet and much pulse of defferent varieties. He also mentioned other plants used for food in India. Famine never visited India and food scarcity was never known. Fruits and succulent roots afforded abundant sustenance to men. Garden vegetables were in plenty. He gives a glimpse of the Indian supper. A small tripod was placed and a bowl on it. In this, were put boiled rice and many other dainties prepared according to Indian recipes. On the question of drinks, Megasthenes wrote that Indians never drink wine except at sacrifices. This beverage is said to be a iliquor prepared from rice

instead of from barley. The principal food was rice pottage.

All the original voluminous treatises on India by the Greek visitors during the reigns of Chandra Gupta Mourya or of his son, Bindusarar have been unfortunately lost. Fragments of the lost works or incomplete summaries only are now available, in the compilations of later historians. Hence the great value of the Artha Shastra of Kautilya,\* a book believed to have been written by no less a personage than the great preceptor and Prime Minister of the Founder of the Mouryan Empire, in the fourth century before Christ. The book is a treatise on "Science of Polity" based on earlier texts and current practices, serving as Manual of Administration for the guidance of the Kings and officers of the Mouryan times, when "for the first time in recorded history, a vast centralised state had risen in India".

Should we fly to Britain and America to learn "a food plan for India".

Why not learn from History—our own glorious History?

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*N.B.*—\*All extracts in the booklet are taken from the English translation by R. Sharma Shastry, published by the Government of Mysore, Bangalore, 1915.

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# I. Agricultural Enterprise and Administrative Control of Produce

1. *Food Production*:—“Agriculture must always flourish. May the Goddess reside in seeds and wealth.” That was the slogan of the times. The Superintendent of Agriculture, possessed of the knowledge of the Science of Agriculture, assisted by those trained in such sciences, had multifarious duties. He had to acquire knowledge of meteorological factors, such as quantity of rain, and the seasonal distribution of rainfall in different regions, and arrange sowing of the seeds in different soils and seasons according to the rainfall and the nature of the seeds.

“*Sali* (a kind of rice), *vrihi* (rice), *kodrava* (*paspalum scrobiculatum*); *tila* (sesamum), *priyangu* (panic seeds), *daraka* (?) and *varaka* (*phaseolus trilobus*) are to be sown at the commencement (*purvavapah*) of the rainy season.

“*Mudga* (*phaseolus mungo*), *masha* (*phaseolus radiatus*) and *saibya* (?) are to be sown in the middle of the season.

“*Kusumbha* (safflower), *masura* (*errvum hirsutum*), *kuluttha* (*dolichos uniflorus*), *yava* (barley), *godhuma* (wheat), *kalaya* (leguminous seeds),

*atasi* (linseed), and *sarshapa* (mustard) are to be sown last.

“Or, seeds may be sown according to the changes of the season.”

New lands were brought under cultivation by giving facilities to cultivators. The Superintendent had also to consider the supply of workmen and water and the nature of the soil in deciding about the nature of the crops to be grown.

“Rice crops and the like are best ( *jyastha*  i.e., to grow); vegetables ( *shanda* ) are of intermediate nature; and sugarcane crops ( *ikshu* ) are the worst ( *pratyavarah, i.e.* very difficult to grow,) for they are subject to various evils and require much care and expenditure to reap.

“Lands that are beaten by foam ( *phenaghatah, i.e.,* banks of rivers, etc.,) are suitable for growing valliphala (pumpkin, gourd and the like); lands that are frequently overflowed by water ( *parivahanta* ) for long pepper, grapes ( *mridvika* ) and sugarcane; the vicinity of wells for vegetables and roots; low grounds ( *hariniparyantah* ) for green crops; and marginal furrows between any two rows of crops are suitable for the plantation of fragrant plants, medicinal herbs, cascus-roots ( *usinara* ),  *hira*  (?),  *beraka*  (?) and pindaluka ( *lac* ) and the like.

“Such medicinal herbs as grow in marshy grounds are to be grown not only in grounds suitable for them, but also in pots (*sthālyān*).”

He had also to make timely collection of seeds of all kinds of grams, fruits, vegetables, roots etc. Hints for the preparation of seeds for growing and the actual ritual of sowing the seeds accompanied by the recitation of a *manthira* were given. The sprouts of seeds when grown are to be manured with a fresh haul of minute fishes and irrigated with the milk of *Snuhi* (*euphorbia antiquorum*). Slaves, labourers and prisoners were employed to sow the seeds on crown lands and were supplied with provisions in proportion to the amount of work done by them.

“Grains and other crops were collected as often as they were harvested. No wise man shall leave anything in the fields, nor even chaff. Crops, when reaped, shall be heaped up in high piles or in the form of turrets. The piles of crops shall not be kept close, nor shall their tops be small or low. The threshing floors of different fields shall be situated close to each other. Workmen in the fields shall always have water but no fire.”—*Book II, Chapter 24*.

II. *Collection and storage of food produce* :—The Superintendent of Storehouse supervised the accounts of agricultural produce. His chief duty was to

supervise the stores of various agricultural produce brought in by different departments. Of the store thus collected, half shall be kept in reserve to ward off the calamities of the people and only the other half shall be used. Old collections shall be replaced by new supply.

III. *Marketing and control of sales and prices* :—  
The king was enjoined to offer facilities for commerce, construct roads for traffic both by land and water and set up market towns. (*Book II, chapter 1*). The Superintendent of Commerce had to ascertain the demand or absence of demand and the rise or fall, in the price, of various kinds of merchandise. He had also to ascertain the time suitable for the distribution, centralisation, purchase and sale of various articles. It was his duty to see that the sellers did not make such large profits as will harm the people. There was to be no restriction to the time of sale of those commodities for which there is frequent demand. The merchants had to submit to the Superintendent at the end of every day a sale report. “This much has been sold and this much remains.”—*Book II, Chapter 16*.

Though there was a Superintendent of Weights and Measures, who had to look to the manufacture and stamping of the standards (*Book I, Chapter 19*), the Superintendent of Commerce also supervised the weights and measures used by traders and he also controlled the prices. Authorised persons alone should

collect grains and other merchandise. "Collection of such by others without permission shall be confiscated by the Superintendent of Commerce. Merchants who conspire either to prevent the sale of merchandise or to sell or purchase the commodities at higher prices shall be fined 1000 *panas*. The Superintendent of Commerce shall fix a profit of 5% over and above the fixed price of local commodities and 10% on foreign produce. Merchants who enhanced the price or realised profit even to the extent of half a *pana* more than above in the sale or in the purchase of commodities shall be punished with a fine. Fines for greater enhancement should be proportionately increased. Whenever there is excessive supply of merchandise, the Superintendent shall centralise its sale and prohibit the sale of similar merchandise before the centralised supply is disposed of."—*Book IV, Chapter 2.*

*Adulteration* :—Adulteration of grains, oil, alkalies, salt, scents and medicinal articles with similar articles of inferior quality shall be punishable with a fine of 12 *panas*."—*Book IV, Ch. 2.*

*Stocks of emergency* :—"Oils, grain, sugar, salt, dry or fresh vegetables, etc., shall be stored in the fort in such quantities, as can be enjoyed for years together without feeling any want. Of such collections, old things shall be replaced by new ones when received."—*Book II, Chapter 4.*



## II. Animal Husbandry and Dairy Products

The existence of the Science and Art of Veterinary Medicine in India, from the earliest historic times, is no more in doubt, on account of the discovery of the many valuable treatises in Sanskrit, which deal with the care of cattle and cure of their diseases, in a very systematic and scientific manner. There are also many allusions in non-professional, religio-historical works, like puranas, epics, etc., to cattle diseases, as well as to the eminent experts and writers on Veterinary medicine, from Sages to Princes. Kautilya's Arthasastra gives a general but interesting peep into the work of the State and people for the care and treatment of cattle, for the benefit of Agriculture and for the sake of milk products.

*Care of Cattle* :—There was a Superintendent of cows with multifarious duties including classification of cows. He kept a register of the classes of herds and supervised the work of cowherds etc. The Superintendent saw that the cows were milked only according to rules, (once or twice according to the season) checked the utilisation of the milk as well as the quantity of butter yielded by the milk cows, buffaloes, goats sheep etc., according to the fodder given. Rations were fixed for different type of bulls and cows. All cattle were to be supplied with abundance of fodder and water. Draught oxen and cows yielding milk

were given subsistence in proportion to the duration of time.

The owners of cattle had to protect cows from drowing, lightning, tigers, cobras etc. Cowherds had to see that their cattle did not enter deep rivers or lakes, or get caught by mire or crocodiles. Whenever an animal was caught hold of, by a thief, a tiger, a snake, or a crocodile, or when it was too infirm owing to age or disease, the cowherds had to make a report of it. Cowherds had to apply remedies to calves or to aged cows, or cows suffering from diseases.

*Cruelty to animals* was punished. Whoever hurt or caused another to hurt a cow was to be slain.

*Cattle-breeding*:—The state offered full facilities for cattle breeding by having bulls for crossing cows, as distinct from draught oxen, yoken oxen and bulls for supply of flesh:

*Animal nutrition* was well understood as can be seen from the following extract:—

“Increase in the supply of milk and butter depends on the nature of the soil and the quality and quantity of water and fodder,”

*Rations for Cattle were provided on a generous scale*:

“For bulls, which are provided with nose strings, and which equal horses in speed and in carrying loads,

half a bhara of meadow grass (yavasa) twice the above quantity of ordinary grass (trina) one tula (100 palas) of oil cakes, 10 adhakas of bran, 5 palas of salt (mufhalavanam) one kudumb of oil for rubbing over the (hasya) nose. 1 prastha of drink (pana) one tola of flesh, 1 adhaka of curds, 1 drona of barley or of cooked masha (phraseolous radiatus) 1 drona of milk or half an adhaka of sura (liquor) 1 prastha of oil or ghee (sneha) 10 palas of sugar or jaggery. 1 pala of the fruit of sringibera (ginger) may be substituted for milk (pratipana).”

“The same commodities, less by one quarter each, will form the diet for mules, cows, and asses; twice the quantity of the above things for buffaloes and camels.”

“The draught oxen and cows supplying milk (paya) shall be provided with subsistence in proportion to the duration of time the oxen are kept at work and the quantity of milk which the cows supply.”

“All cattle shall be supplied with abundance of fodder and water.

“For bullocks, one drona of masha (phraseolous radiatus) or one drona of barley cooked with other things as prescribed for horses, is the requisite quantity of food besides the special and additional provision of one tula of oil cakes (ghanapinyaka) or ten adhakas of bran (kanakundaka)”

“Twice the above quantity for buffaloes”

*Veterinary Medical aid*:—Cattle breeding was well organised. Veterinay Surgeons were available to apply medicines and change the diet of cattle, afflicted with disease. “When owing to the defects in medicine or carelessness in treatment, the disease becomes intense, a fine of twice the cost of the treatment shall be imposed; and when, owing to defects in medicine, or not administering it, the result becomes quite the reverse, a fine equal to the value of the animal (patramulyal) shall be imposed” (Book II Chapter 30).

*Dairy Products*:—The most interesting record on the question of milk may now be extracted: “One drona of milk when churned yields one prasth of butter; the same quantity of buffalo’s milk will yield  $1/7$  prastha more and the same quantity of milk of goats and sheep will yield  $\frac{1}{2}$  prastha more. In all kinds of milk the exact quantity of butter shall be ascertained by churning; for, the increase in the supply of milk and butter depends on the nature of the soil, the quality and quantity of fodder and water” (Book II Chapter 29)

The cowherds were allowed to keep buttermilk and coagulated milk or cheese for their families.



### III. Meat and Drink

*The Superintendent of Slaughter Houses*:—The existence of an appointment called the Superintendent of Slaughter Houses will indicate the highwater mark of Public Health Legislation and Administration in ancient India. Horses, bulls, monkeys, deer, fish in lakes, etc., game birds, were under state protection. Entry into forest preserves was forbidden. Of beasts of prey that have been captured, the Superintendent shall take  $1/6$ ; of fish and birds  $1/10$ ; of deer  $1/16$  as toll."

*Rules for selling meat*:—"Butchers shall sell fresh and boneless flesh of beasts, just killed. If there is any diminution due to false balance, they shall give 8 times the diminution.

"Cattle such as milch-cow, bull or calf shall not be slaughtered. He who slaughters them shall be fined 50 panas.

"The flesh of animals which have been killed outside the slaughter houses, headless, legless and boneless flesh and the flesh of animals which have suddenly died, shall not be sold. Otherwise, a fine of 12 panas shall be imposed". (Book II. Ch. 26)

*Fish and vegetables*:—The king was also expected to exercise his right of ownership with regard to fishing and trading in vegetables. Fishermen had to give  $1/6$

of the haul as fees for fishing licence. Vegetable dealers fishermen and firewood dealers and those who supply villages of marshy districts with necessities of life, were allowed to cross rivers at any place and at any time. The cities had “sellers of cooked flesh, flavoured rice, etc.”

*Beverages*:—Superintendent of Liquor carried on and controlled the manufacture and sale of liquor of various kinds. Varieties of drinks, modes of preparation and rules for selling are given in detail. One interesting provision (restrictions) may be quoted here an example of the vigilance and care of the law-givers of the age. Temperance was legally enforced. “Lest the workmen spoil the work in hand and Aryas violate their decency and virtuous character and lest firebrands commit indiscreet acts, liquor shall be sold to person of well known character in such small quantities  $\frac{3}{4}$  or  $\frac{1}{2}$  kudumbs. Those who are well known and of pure character may take liquor out of the shop.”—*Book II, Chapter 25.*

*Rules were relaxed occasionally* :—“On the occasions of festivals, fairs and pilgrimages, right of manufacture of liquor for 4 days was allowed.”



## IV. Science of Food Technology

1. *Methods of preserving*:—Methods of storing of grains, oils, salts and jaggery were known and frequently used. Fish, Flesh, Vegetables were preserved long after dehydration or drying.

2. The Superintendent had to personally supervise the increase or diminution sustained in grains when they are pounded, frayed or reduced to flour or fried or dried after soaking in water. Minute and detailed rules are given indicting the actual quantities and fractions fit for food in grain pulses (rice, millet, black-gram). The treatise also mentions the probable increase in quantities when rice and other articles are cooked or when barley flour is baked, or when grains and seeds are moistened or soaked and fried.

3. *Knowledge of edible fractions*:—“The essential part (sara i.e., that which is fit for food) of kodrava (Paspalam Scrobiculatum) and of vrihi (rice) is one half; that of sali (a kind of rice) is (half) less by one eighth part; that of varaka (Phraseolus Trilobus) is (half) less by one third part; that of priyangu (panic seed or millet) is one half; that of chamasi (barly) of mudga (Phraseolus Radiatus) is (half) less by one eighth part; that of sabya (simbi) is one half; that of masura (Ervum Hirsutum) is (half) less by one-third part (than the raw material or grains from which it is prepared).

4. *Increase of bulk on cooking, etc* :—Raw flour and kulmashu (boiled and forced rice) will be as much as one and half of the original quantity of the grains.

Barley gruel as well as its flour baked will be twice the original quantity.

Kodrava (Paspalam Scrobiculatum); varaka (Pharasyolus Trilobus) udaraka (Panicum) and priyangu (millet) will increase three times the original quantity when cooked. Vrihi (rice) will increase four times when cooked. Sali (a kind of rice) will increase five times when cooked.

Grains will increase twice the original quantity when moistened and two and a half times when soaked to sprouting condition.

Grains fried will increase by one fifth the original quantity; leguminous seeds (kalaya) when fried, will increase twice the original; likewise rice when fried.



## V. Dietetics

### VARIETY AND ADEQUACY OF DIETS

1. *Variety*:—A list of articles mentioned by Kautilya serves as an index of the multiplicity and the adequacy of food articles:—Gams, oils (including clarified butter), granulated sugar, sugar-candy, honey of the bees, juice of the grapes, various kinds of salts (those from the mines and those from the seas), fruits, vegetables, fish and spices. The various practices employed in the preparation of food stuffs for daily consumption are also indicated. Rice was pounded, pulses divided, corns and beans fried, flour was manufactured by specially trained workers. Oil was extracted by employing shepherds and oil makers. Sugar was manufactured from sugarcane.

2. *Rice*:—Rice was probably the staple article of diet though other grains took its place under different circumstances and in certain regions. It is somewhat surprising to know that the Mouryan Empire had fixed regular rations of rice and other articles. The code prescribes the quantity of rice supplied or permitted for each man, woman and child. The nutritional experts will also note with interest that one of the prevalent methods of preparing rice was “Boiling and forcing rice”. Rice was also fried and rice cakes were popular. Bran and flour were given to slaves and labourers.

3. *A square meal* :—One prastha of rice, pure and unsplit, one fourth prastha of supa, and clarified butter or oil equal to one fourth part of (supa) will suffice to form one meal of an Arya.

One sixth prastha of supa for a man : and half the above quantity of oil will form one meal for low casset (avara).

The same rations less by one fourth the above quantities will form one meal for woman ; and half the above rations for children.

For dressing twenty palas of flesh, half a kudumba of oil, one pala of salt, one pala of sugar (kshara), two dharanas of pungent substances (katuka, spices) and half of a prastha of curd (will be necessary).

For dressing greater quantities of flesh, the same ingredients can proportionately be increased.

For cooking sakas (dried fish and vegetables) the above substances are to be added one and a half times as much.

For dressing dried fish, the above ingredients are to be added twice as much.”—(*Book II. Chapter 15*).



## Conclusion

In the inimitable language of Pandit Nehru, "the influence and many-sided activities of the central Government were all-pervasive, and in some ways, this Mouryan state reminds one of modern dictatorships. There could have been then, in a purely agricultural age, nothing of the control of the individual by the state which we see to-day. But, in spite of limitations, an effort was made to control and regulate life. The state was very far from being just a police state, interested in keeping external and internal peace and collecting revenue."

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A New Era has begun in the East. A new day is dawning. The silence is broken. A new spirit and a new life is pervading the whole country.

The austere Sage of Sabarmati may counsel patience, selfreliance and selfdenial, change of diets from rice to edible grass but he does not believe that South India could ever starve. "Theirs was a land which produced bananas, coconuts, yams, tamirind, greens and chillies. What more did they want? They, with their intelligence and resourcefulness, could easily learn to do without rice, if they were asked to do so." That is the Gandhian way of life.

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Babu Rajendra Prasad, "with the heart of king" willing to "share his last crust of bread with the poor"

in distress also hails from the famous capital of the Mouryan Empire. His appreciation of the food situation and his appeals to the people and to the Scientific workers indicate a harmonious blending of the wisdom of the East and the Scientific realism of the West. The Member for Agriculture and Food says "Above all, we must each and all be prepared to share whatever we have with others. Those who have large stocks either as producers or as traders, must realise the seriousness of the situation and produce it for being pooled for the common good."

And addressing the Council of Agricultural Research, he declared "Two square meals a day for every one in India is the immediate objective of the efforts to step up food production."

"Science in the service of the Country must be our ideal. All research must be judged from the contribution it makes to the welfare of the masses. A poor country like India can ill-afford ivory tower research, divorced from the realities of life and the needs of the cultivators."

Compare the principles and practices laid down in Arthasastra by Kautilya with the statement of policy of the first Indian Government and one cannot but be struck by the close parallelism on essentials. Thus spake the illustrious patriot of Patna, (Pataliputra) "Agriculture and food should have the highest

consideration and agricultural research, which places in our hands the means of increasing the food supply of this country should have the highest priority. We may remember that agriculture in India is entirely dependent on bullock power and is bound to remain so in the foreseeable future. The cow and her progeny, therefore, claim and should get our attention, so that there may not only be plentiful supply of milk, which is an essential item in a balanced diet but also of strong and healthy bullocks necessary for efficient cultivation and other draught purposes." This is, indeed, the voice of Agricultural India and the prayer of the Agriculturist. (Krishivala).





PRINTED AT B. N. K. PRESS  
MADRAS 1 Q. H. NO. MS. 100/B  
FOR D. DIS. P. CON. A.  
69 60/46 — 1000-1-1947