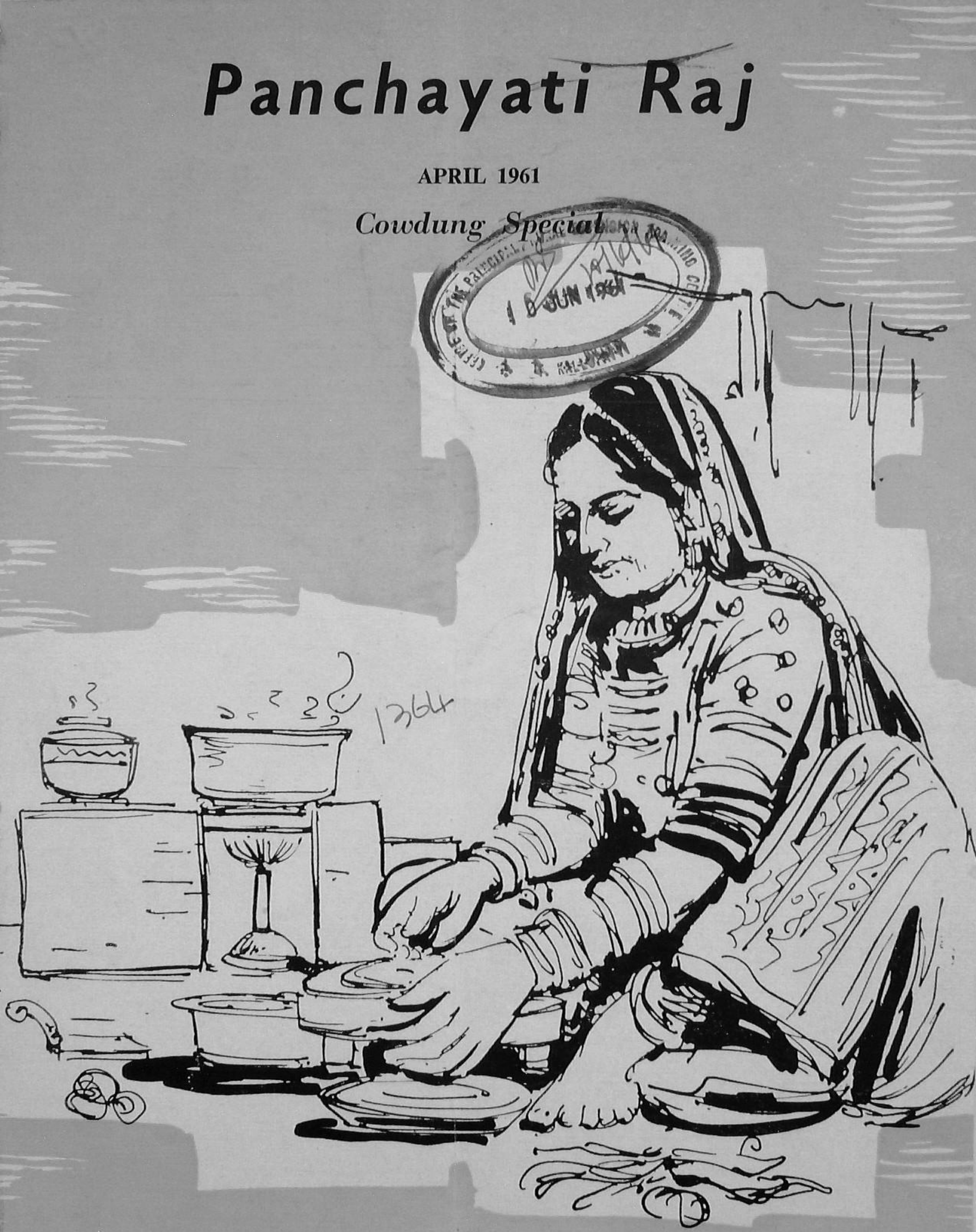
Panchayati Raj

APRIL 1961

Cowdung Special



PANCHAYATI RAJ

(Incorporating Gram Sevak)

CHAITRA 1883

Vol. 2 APRIL 1961 No. 1

CONTENTS

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Cover Design : ROMESH CHANDRA

BUSINESS NOTICE

Single Copy : 15 nP.

Annual : Rs. 1·25

All enquiries regarding agency and rates of subscription and advertisements may be addressed to the Business Manager, Publications Division, Old Secretariat, Delhi-6. Editorial correspondence may be addressed to the Editor, *Panchayati Raj*, Ministry of Community Development & Cooperation, Krishi Bhavan, New Delhi.

PAYMENT TO CONTRIBUTORS

To encourage readers of Panchayati Raj to share with their friends their thoughts, experiences and achievements in the field of Community Development, Cooperatives and Panchayats, it has been decided to pay for letters and contributions appearing in this journal with effect from March, 1961. The payment will be made at the rate of Rs. 5 for each letter and about Rs. 10 for each accepted article. Readers are requested to write articles and letters on subjects of common interest and to address them to :

The Editor, Panchayati Raj,
Ministry of Community Development and Cooperation,
371, Krishi Bhavan,
New Delhi.

OUR MONTHLY LETTER No. 9

New Delhi
April 7, 1961

DEAR COMRADE,

The Bhavnagar Session of the All-India Congress, early this year, gave a mandate to all States to proceed with Panchayati Raj. Parliament has given its whole-hearted support and blessings to the programme. Not a solitary voice is opposed to it. In fact, complaints are that it should have proceeded even faster. Before the year ends, Panchayati Raj legislation will have gone through, almost in all States, and it would be on the ground in a major number of them.

I have mentioned to you throughout that Panchayati Raj is no 'Talisman'. It will need even harder efforts on the part both of Government servants and the people's representatives at least in the initial years. When Panchayati Raj comes to your State you should try to know the direction in which it is moving. Is it proceeding towards its destination or in the opposite direction ? How fast is it moving and what are its successes, failings and disabilities ?

I would like you, whoever you are, to ask yourself the following questions. You should, in your turn ask these questions of the Government servants engaged in the programme as also the people's representatives. The questions are :

1. Is the Panchayati Raj system succeeding in making fuller use of the Block staff ?

2. Are the amenities offered by Government through the Block organisation being distributed with equity and justice ?

3. Are the Presidents of Panchayat Samitis and Parishads working as a team with other members in the Samiti and the Parishad or are they trying to direct things solely by themselves from above ?

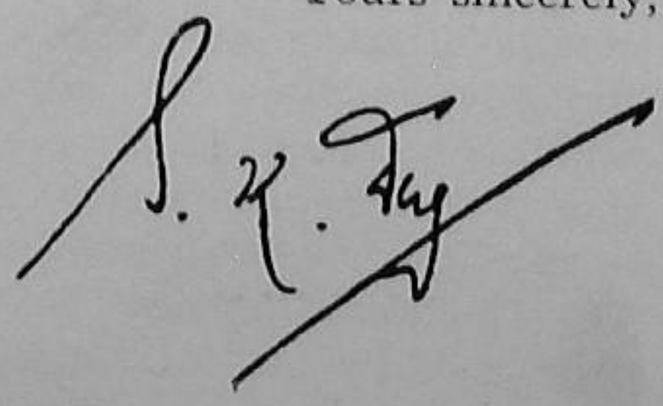
4. Is initiative for decision and action being dispersed widely so that it can vest, in progressively increasing measures, as we approach the people nearer the ground ?

5. Are local resources, especially idle manpower being utilised for programmes of 'individual' and community improvement or are Panchayat institutions putting forth only larger demands for grants-in-aid from Government ?

6. Are Block Panchayat Samitis giving special emphasis on help to the weaker sections of the community as any wise head of a family would like to do ?

The answers to the above will offer material for heart-searching to all who have a stake in the future of our democracy in India and our freedom.

Yours sincerely,



GLIMPSES OF PANCHAYATI RAJ

Vishnu Dutt

THE DIN AND DUST of Panchayati Raj elections held in the states of Rajasthan, Punjab, Uttar Pradesh and Orissa is now over. On the whole, the elections have been free and fair and may be said to have achieved considerable success in view of the fact that the number of voters living in the farflung villages of the countryside is very large. The elections have stirred the ruralites as never before. At some places, the percentage of people who have exercised their franchise is as high as 95. It is reassuring to note that the womenfolk were not less inspired than the men and at several places they created history by sweeping the polls and capturing all the seats. The system of election by secret ballot and by marking has been tried with success and bids fair to be an equal success when adopted at the time of the coming general elections. Factional and casteist trends have not been very much in evidence though not quite absent. An appreciable number of elections have been carried out unanimously, being 25 per cent in Rajasthan, 28 per cent in Punjab and 50 per cent in U.P. The State Governments are to be congratulated for having encouraged unanimity by holding out promises of prizes and remission of land revenue to Panchayats returning unopposed representatives. The political parties have done well by not interfering in the elections.

SLUR ON PANCHAYATI RAJ

However, it cannot be claimed that the elections have been entirely peaceful and unmarred by illegal and untoward incidents here and there. Both the officials and the non-officials have had their hands soiled in the dirty game. There were allegations of canvassing, violation of secrecy of the ballot and tampering of the ballot box against the staff entrusted with election duties in Rajasthan. The reports, if true, constitute a serious deriliction of duty on the part of those in-charge of the elections. In that case, the threat to Panchayati Raj is more real and formidable from the so-called educated class rather than the illiterate village people. Such tendencies deserve to be put down with a heavy hand.

There is no doubt that at some places the simple village folk have not been able to take the elections in a sportsman spirit. They have found it impossible to overcome the trail of bitterness and resentment left by the elections. Particularly disturbing is the news from village Sakariya near Aligarh where the elected Pradhan along with five others were killed by a party of the defeated candidate. The incident is highly regrettable and is a slur on the Panchayati Raj. Let us hope our people will soon realise their responsibilities as free citizens of a democracy and would not let such incidents happen again under any circumstances.

TASKS AHEAD

This is only the beginning. The elected Panches have to be alert and conscious of their duties. They must realize this and the sooner they do the better. A heavy responsibility of looking after the interests of the community as a whole has now devolved on their shoulders. Unless they rise to the occasion, the entire fabric of Panchayati Raj will come to naught. Shri S. K. Dey, Minister for Community Development and Cooperation has in his monthly letter appearing in this issue, pointed out some significant steps that every well-wisher of Panchayati Raj must keep before him and try to follow in its light. The first and foremost duty of the Panchayats is of course to mobilise all available resources in surplus manpower and material for the good of the community. The Panchayati Raj would have been ushered in vain if the villagers' dependence on Government aid, continues as heretofore and the people's contribution is not stepped up considerably. The first task that the Panchayats should, therefore, address themselves to is the raising of financial resources by various means such as levy of authorised taxes, building up of remunerative community assets like forests, pastures and tanks, etc. Before the

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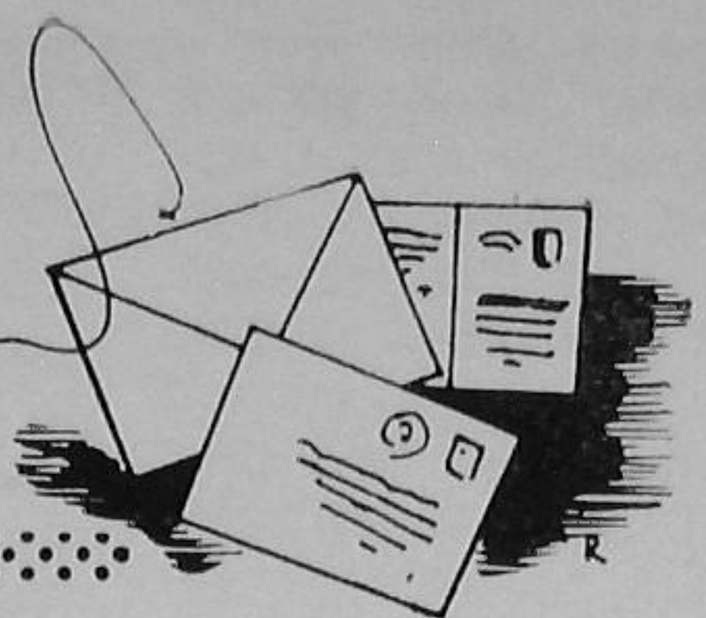
LETTERS



Some Suggestions

Sir,

THE Union Minister for Community Development and Cooperation in his monthly letter No. 7 in Panchayati Raj December issue has posed a very important and pertinent question about the enormous literature that is produced on every subject of community development, *viz.;* how to make the literature reach the villager ? We must find a proper answer to this.

A lot of literature is being received, mostly in the English language, and this literature is bieng passed on to the Extension staff and the V.L.Ws. who are expected to pass on the same (if received in the regional language) or convey its contents to the villagers during their visits to villages and personal contacts with the people. But it is found that this is not an effective method of giving publicity to the contents of the valuable literature that is being published, as it is not reaching the maximum number of villagers, for some reason or the other. In order to improve the situation, it is suggested that the literature may be got printed in simple regional languages so that it is read and understood by the villagers themselves without much difficulty. Moreover the literature may be sent direct to people's institutions like Panchayats, Sahakari Samaj, Yuvak Mandals, Mahila Mandals and Bal Sabhas so as to avoid the contingency of the literature being held up somewhere without reaching the villages. This will create interest in the members of the people's institutions and through them in the villagers at large.

There is no doubt that enormous funds are being spent by the Union and State Governments on producing literature intended for consumption at the village level. It is therefore necessary to ensure that the literature reaches the people for whom it is intended. In so doing, some extra expenditure on postage etc., may not be grudged since this ensures that the costly literature will serve the purpose aimed at, namely, educating the masses.

7-2-61 Yours etc.
Gara *K. K. Viswanadham,*
B.D.O.

Panchayati Raj in regional languages

Sir,

I have the opportunity to go through all the issues of your journal. I find that it throws light on very important issues of the day. It brings to light the silent and revolutionary changes that are taking place in our country. Besides it gives a sense of pride to those who achieve success and offers inspiring examples for others to emulate and strive hard.

The prime idea of starting a magazine of this type, I suppose, is not only to disseminate information and knowledge, but also to build up sufficient public cooperation and support. As this magazine is published in English, its effective service remains definitely limited. Only those blessed few, who have had university and college education can take advantage of it. But our aim should not be restricted to them only. The journal should aim at inspiring public sympathy and interest. It should reach the hands of the villagers for whom it is meant. They must be able to read and understand what is happening in other parts of

the country. Only then it would serve its real purpose, *viz.*, to mobilise popular support and participation. So I would plead that the same content may also be published in different regional languages so that the literate farmers can keep themselves abreast of the latest developments.

10-2-61 Yours etc.

M. Thirunavukkarasu
Coimbatore,
Madras.

(The Ministry of Community Development and Co-operation have already taken concrete steps in this direction by offering to pay 50% subsidy to such State Governments as agree to bring out regional language editions of Panchayati Raj and include therein the material contained in our English edition. Several States have already started publishing such regional language editions. It is hoped that others will also follow suit.—Editor)

* * * *

'Prosopis' Plantation

Sir,

The huge waste of cowdung is due to two reasons. In the first place, there is lack of adequate fuel in the rural areas. A systematic attempt to plant fuel trees has not been made so far at least in dry tracts where there is no vegetation for miles around. I think 'prosopis' will be the easiest to grow. Mere dibbling produces a luxuriant growth with plenty of wood in a short time. I suggest that this item may be taken up on a nationwide scale and a campaign launched to plant these in all the waste lands, barren hills, and along the river banks. This will also solve the soil erosion problem.

Secondly, the fault lies in the defective approach of the extension staff. The farmer's household is a complex entity. While the farmer's voice may be dominant, it is not all that matters. The house-wife traditionally plays an influential role in the agricultural household. So also does the farm servant, particularly if he has been in the household for long years. An attempt to woo and convince this sector of people, so far untouched, seems to be urgently called for if our efforts are to be crowned with success.

24-1-61 Yours etc.

B. Balasubrahmanyam,
B.D.O.
Adoni.

('Prosopis' is popularly known as vilayati 'Babul' or 'Kikar').*

Arhar—Both Food-grain and Fuel

Sir,

Our cultivator is forced to burn a good portion of cowdung due to insufficiency of fuel supplies. This can be readily diverted to the fields as manure if his full requirements of fuel are met without putting him to additional expense. Unfortunately due to small fragmented holdings and heavy pressure of population on land, the fuel tree plantation programme is not making enough headway in the existing agrarian conditions. On the other hand, it is necessary to check large-scale felling of existing trees in order to prevent our agronomical balance from deteriorating belond redemption. Sufficient alternative fuel, therefore, has to be found both for diverting cowdung from the kitchen fire to the compost pit and for preserving our forest wealth.

A practical solution of the problem lies in tapping the traditional fuel source, viz. the *Arhar* and Cotton stalks. In most parts of the country dry *Arhar* and Cotton stalks usually supply cultivator's fuel requirements for six to nine months. If the fuel yield of these crops is stepped up to supply full requirements of the cultivator, the whole of cowdung collected by him would become available for use as manure.

I have no first-hand experience in respect of cotton crop in this connection. But I have seen that fuel and grain yield of *Arhar* crop can be increased three fold simply by sowing the crop in lines with proper spacing and taking a little pain in its cultivation like other major crops.

If instead of being broadcast, *Arhar* is sown in lines six to nine feet apart with a space of three feet from plant to plant and a couple of hoeings and earthings are done during rainy season, each *Arhar* plant grows into a small tree. These strong thick-stemmed plants are also able to withstand frost in the winter which damages the ordinary crop in the colder parts of North India.

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COWDUNG GAS PLANT

Dr. R. V. Tamhane and A. B. Ghosh

Indian Agricultural Research Institute, New Delhi

In recent years, there has been much talk about the cowdung gas plant at various levels, by scientists, politicians, administrators, executives and extension workers. The common man and the farmer have also heard about it through the press and the radio and many have probably seen it being demonstrated at agricultural and industrial fairs, farmers' exhibitions and .rural shows. Quite often, the benefits that are likely to accrue out of the cowdung gas plant are much over-stressed out of sheer enthusiasm while at some corners it is summarily disposed of as something that has only a propaganda value with little practical utility. As a result, the farmer, who is to actually use the gas plant, is often left in a dilemma about its real value. In this article, therefore, an attempt has been made to present the various aspects of the cowdung gas plant in a perspective, without going into the technicalities, based on the fairly long association of the authors with the subject, both in the laboratory as well as in the field.—EDITOR.

THE APPARATUS

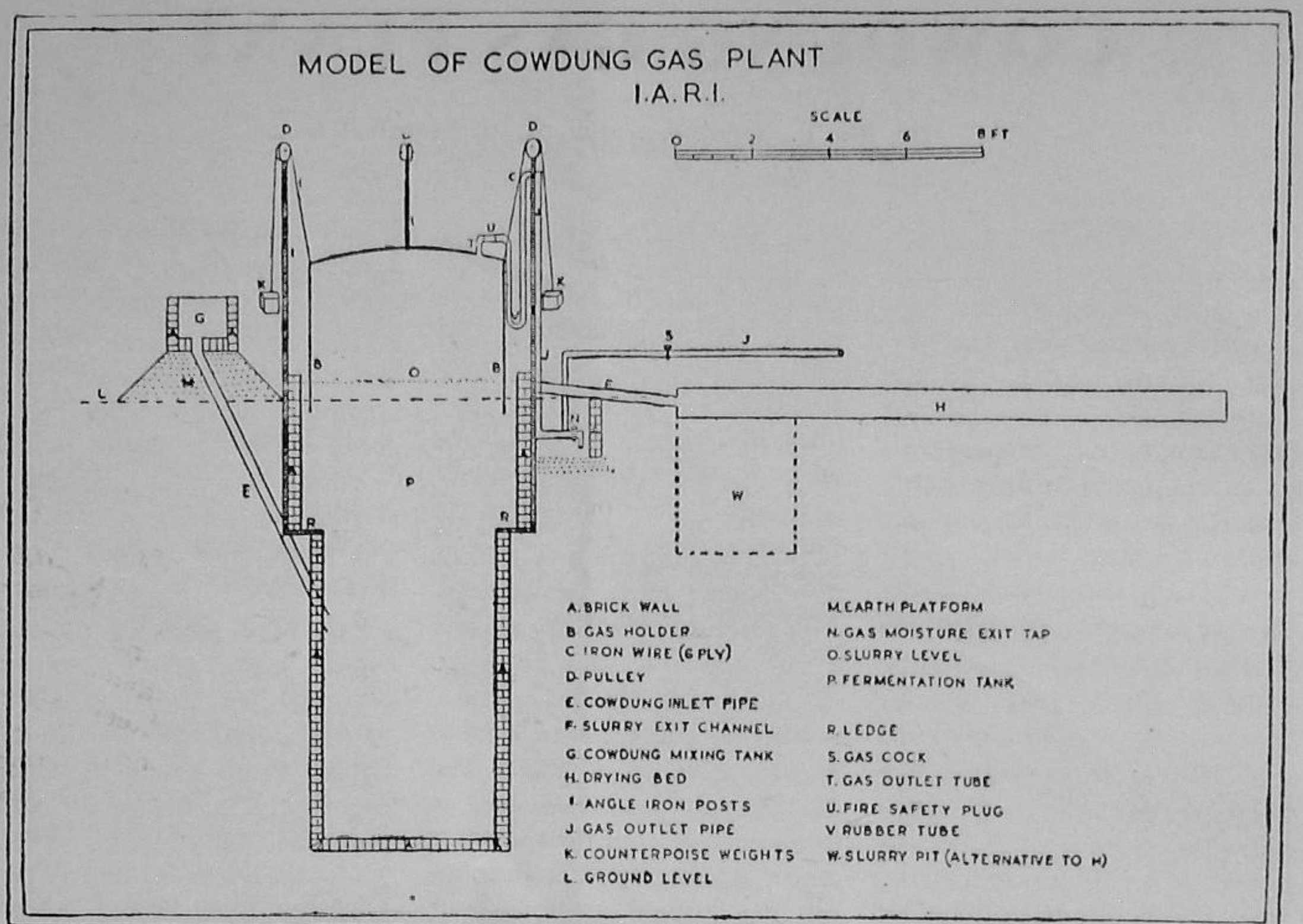
The cowdung gas plant is a simple apparatus in which fresh cowdung or any other similar dung of buffalo, horse or camel is digested (technically known as fermentation) in water, anaerobically, that is, in the absence of air. The organisms (minute microscopic bodies) for carrying out the fermentation are already present in the dung itself and therefore, nothing except water is required to be mixed with dung. All of us have observed that when dung or any such substance is left in the open, most of it disappears as certain organisms which work in the presence of air, break up the organic matter in the form of carbon dioxide gas. But when the air supply is cut off a different set of organisms work producing a combustible gas known as 'methane'. As some carbon dioxide and air are always present in dissolved state in water the gas also contains some carbon dioxide. The residue left behind, after gas production, can be used as a valuable manure.

EFFICIENT AND CHEAP

It is absolutely necessary that the set-up of the gas plant should be simple and economic so that it can be widely adopted. There are several efficient but costly plants being run by big commercial, cultural and social organisations like agricultural institutions, dairies, khadi ashrams, samaj seva kendras, etc., but the common farmer can hardly afford such plants. The Indian Agricultural Research Institute has always been feeling the need for giving something to the average Indian farmer, which he can conveniently possess for getting a neat source of fuel and conserve his cow-dung resources for manurial purposes. The village model cowdung gas plant, designed at this Institute, is a result of the work done in this direction.

The plant consists of two major parts, (i) an underground brick-lined well about 12 feet deep, and (ii) the gas holder drum above it, which can freely go inside the well upto its height (*See* Fig.). There is an arrangement for feeding fresh dung slurry through a feeding pipe to the bottom of the well. The gas drum is made of galvanised or mild steel sheets welded in the form of a cylinder, open at the bottom. It can be of any convenient size; 5 feet in diameter and 4 feet in height being the common size for the village plant. The drum is supported in position by three vertical iron rods or pipes around the well on which are fixed three pulleys over which twisted iron wire with weights on one end runs as the drum moves up and down.

The well is filled with dung slurry made by mixing fresh dung with equal volume of water. The drum is lowered in position and floats up as gas accumulates in it. The gas is taken out through an



outlet at the top of the drum and can be conveyed through pipe lines to the point of consumption.

The gas production takes about ten days. The first few days' collection, being rich in carbon dioxide, may not burn. This is let out till the gas burns with a pale blue, non-smoky, hot flame.

The small-sized gas plant requires to be daily charged with about 100 lbs. (45 kg.) of fresh dung made into a slurry, which can be had from 4 to 5 animals. On an average, about 100 cu. ft. (3 cu. metres) of gas are obtained every day, which is enough for the cooking and lighting requirements of a small village family. As new dung is added, the digested slurry comes out through a channel on the ground in the form of a ready manure.

(Full details regarding the construction, operation and maintenance of the cowdung gas plant can be had from the Indian Agricultural Research Institute, New Delhi-12, by anyone who is interested.)

ECONOMICS OF GAS PLANT

The total cost of installation of the village model cowdung gas plant comes to nearly Rs. 500 and sometimes more depending on local conditions. Due to rise in prices of all commodities, especially of steel, the cost has gone up by nearly Rs. 150 during the last 5-6 years. There is no doubt that this much of investment may not be possible for many farmers and in case the gas plant has to become popular this monetary difficulty must be overcome. As regards making a still cheaper plant this may not be of much use in the long run as use of cheaper fabricating materials will lower its service life and will also worry the owner with frequent repairs and maintenance bills.

RESOURCES

Due to shortage of fuel, more than half of the amount of dung available with the farmers is burnt as fuel. The gas plant offers a great scope

(*Continued on page* 15)

COWDUNG GAS PLANT

Progress at a glance

AT THE CENTRE

THE MINISTRY of C.D. & C. has been taking active interest in popularising the setting up of cowdung gas plants in the C.D. Blocks. Sometime ago, it had suggested to the State Governments that to start with, they might put up 5 plants as an experimental measure in a Block around such Agricultural Training Centres, where agricultural workshops are attached. It was also suggested that while the I.A.R.I., New Delhi would offer technical assistance for setting up the plants, the supervision, maintenance and initial manufacture of the plants will be the job of the agricultural workshop attached to the Extension Training Centre. Some success has been achieved, but more efforts are needed to popularise the scheme on a larger scale.

* * *

An agreement has been signed between the Government of India and Chemolimpex, the Foreign Trade Company for Chemical Products of Hungary, for the setting up of bio-gas fertiliser producing plants. Hungary has made great progress in utilising agricultural wastes for producing energy as well as manures. It has perfected a technical method which has now been patented in India.

Under the terms of mutual agreement, the Chemolimpex will furnish the Government of India with technical data and designs and also provide adequate technical staff for the installation of these plants. To begin with, two pilot plants will be established, one at the National Sugar Institute, Kanpur, where bagasse will be utilised, another at the Agricultural Research Institute, Delhi which will utilise cowdung and other agricultural wastes.

Within six months, the Government of India will furnish to Chemolimpex an estimate of the number of units which are likely to be installed by Governmental agencies. The Chemolimpex will also be permitted to help private parties in setting up bio-gas plants.

* * *

AROUND THE STATES

MYSORE

The Mysore Government have taken steps to set up one cowdung gas plant at each of its five Extension training centres.

MADHYA PRADESH

Madhya Pradesh State Government have decided to set up 12 cowdung gas plants in each Block. The cultivators are being given 50% subsidy on the total cost of about Rs. 300 for each plant.

RAJASTHAN

The Rajasthan Government is taking steps to popularise the cowdung gas plant. Shri Ganpat Singh, a progressive farmer of Gothia village in Merta Panchayat Samiti of Nagaur district has established a plant with the help of financial grant given to him by the Panchayat Samiti. The plant has been working successfully.

MAHARASHTRA

So far 64 Gobar gas plants have been established in Maharashtra. Out of these, 24 have been installed by village panchayats, cooperative societies and voluntary bodies like the Sarvodaya Mandal, without receiving any financial assistance from the Government. With the help of 50 per cent subsidy given by the Government, 36 individuals have set up their own plants. The State Government itself is running 4 gas plants for purposes of demonstration and popularising the scheme among the rural people.

PUNJAB

The Punjab Government has set apart a sum of Rs. one lakh for popularising the setting up of gas plants during the Third Five-Year Plan period. The State Agriculture Department has evolved an economic unit of utility Gobar Gas Plant for village homes costing about Rs. 300. The State Government will offer 50% subsidy to individuals coming forward to establish the plants.

COWDUNG AS MANURE

N. A. Majumdar

ALTHOUGH agricultural economics in India is often dubbed as 'cowdung economics', not much seems to be known even about cowdung.

What are the basic facts? It is estimated that manure mostly from cattle amounts to more than 800 million tons annually; of this, 300 million tons are used in dry state as fuel and about 160 million tons or 20 per cent are wasted on hill sides and roads. The economic implication of using dung as fuel in rural areas is highlighted by the fact that if the 300 million tons of dung could be diverted to manuring, about nine million additional tons of grains could be produced. The question, therefore, arises why is it that not much headway is made in the use of dung as manure?

AN UNANSWERED QUESTION

The answer is, it has not been possible for the farmer to make any perceptible progress in diverting the use of dung from fuel to manure, because he has nothing else to use for fuel.

The use of dung as fuel is governed by the availability of alternative fuel materials like firewood, fodder refuse, cotton stalks, dry stubbles, etc. In the wet tract there is not much firewood to be had; and because paddy is the main crop there is not even considerable fodder refuse. As the coastal tract has a large forest area, the farmers do not find it difficult to secure firewood at negligible cost. On the other hand, the quantity of manure is higher in the wet than in the dry and the coastal tracts, though the total number of animals here is smaller. This is because of the comparatively higher evacuation per animal.

COWDUNG VERSUS FERTILISERS

Now to turn to the problem of using dung as manure. The Indian Agricultural Institute has designed a simple village model of a cowdung gas plant, costing about Rs. 500, and capable of producing 100 cubic feet of gas daily.

This seems to be an ideal gadget; it supplies fuel from dung without destroying its manurial content. Its price, however, is rather high. To expect the farmer to invest Rs. 500 to get what was hitherto available to him almost free of charge is hardly realistic. It would be more practicable, therefore, for the State to set up bigger gas plants, one for every village. The dung of the entire village should be collected and utilised in these plants from which gas could be supplied to all the residents in the village for domestic fuel and lighting. The farmer will not be called upon to invest any amount on such plants; the gas would be supplied to him in exchange for the dung he contributes to the plant. Village sweepings, leaves and other decomposed vegetable matter, all of which might otherwise be wasted, could also be profitably utilised in such plants.

RELATIVE COSTS

What will be the cost of setting up such plants in all the villages in the country? Secondly, given the investment allocation for the production of nitrogen, which of the alternative technical possibilities will be preferred—chemical fertiliser factories or cow-dung gas plants?

Although precise data regarding the cost of such village gas plants are not available, the order of outlay needed could nonetheless be estimated. The cost of such gas plants does not vary directly with size. For instance, a plant about ten times bigger than the 'family plant' designed by the Agricultural Institute is estimated to cost about Rs. 1,000. Assuming that the bigger plant would utilise the dung of about 50 cattle, the aggregate cost for erecting gas plants to use the dung of 155 million cattle in the country (figure for 1951) would work out to Rs. 310 crores.

The 300 million tons of dung would yield 900,000 tons of nitrogen (which is equivalent to 4.5 million tons of ammonium sulphate). The annual rated capacity of Sindri is about 75,000 tons of nitrogen. Therefore, 12 factories each of the size of Sindri will have to be set up. Since fixed investment on

Sindri is about Rs. 25 crores, the total fixed investment alone on the 12 factories would be of the order of Rs. 300 crores.

Thus with more or less the same investment, it seems possible to produce an equal quantity of nitrogen from dung gas plants. There is also a big difference which tilts the scales in favour of gas plants. The decidedly additional advantage of gas plants is the domestic fuel which they can supply to rural areas. It is hazardous to estimate the value of the fuel in monetary terms. As a broad indicator, however, the following data are significant. At present, 60 million rural households, it is estimated, burn dung equivalent to 35 million tons of coal. If the same quantity of fuel is provided by the gas plants—in fact it may be more—the resulting benefit could be valued at about Rs. 210 crores.

SAVING FOREIGN EXCHANGE

Nor is this all. There seem to be a number of incidental advantages. The most important in the present context, is the saving of foreign exchange that would result if the cow-dung gas plant scheme is adopted. Of the Rs. 25 crores of fixed investment on the Sindri factory, the foreign exchange component is Rs. 10 crores. Hence for 12 factories, of about the same size, the total foreign exchange requirements would be Rs. 120 crores. On the other hand, for erecting cowdung gas plants, all the materials and skill can be had from within the country. The time-lag will also be less. It takes about three years to set up a fertiliser factory, while the dung plant may be put up and got into operation within a year.

A more pertinent point is that the cost per ton on nitrogen would be brought down substantially in the case of dung plants. There are at least three facts which go to indicate such reduction. Firstly, the raw materials used on the dung plant obviously cost very much less than those used in the production of chemical fertilisers. Secondly, since the plants will be spread out throughout the countryside the heavy transport costs now incurred on the distribution of fertilisers will almost tend to disappear. Thirdly, the overhead costs are also likely to be lower in the case of dung plants. The elaborate administrative machinery which becomes necessary in the case of a few factories would not be needed in the case of the dung plants. These economies may bring down the cost by more than 30 per cent. It is hardly necessary to add what this would mean to the agricultural economy in general.

LETTERS

(*Continued from page* 4)

Unfortunately very little research has been done on Arhar in the State farms and research institutes. Scientific cultivation of *Arhar* has also received low priority in the agricultural extension drives. Yet it is the only crop which gives both foodgrain and fuel wood. It is the most promising source for supplying full firewood requirements of the cultivator so as to completely obviate the necessity of using cowdung as fuel. Top priority should, therefore, be given to the propagation of *Arhar* cultivation by improved methods. It would be worthwhile to carry out research on raising of Arhar crop on principles of orchard plantation and find out effects of pruning and topping on its fuel and grain yields.

Non-agriculturists would also render much practical help in this direction if they raise their requirements of fuel-wood in the form of big *Arhar* plants in the kitchen gardens and backyards attached to their residences and minimise their off-take of firewood obtained from cut down trees in rural areas.

16-12-60 Yours etc.
Lar, *P. L. Vacher,*
B.D.O.
Dist. Deoria, U.P.

GLIMPSES OF PANCHAYATI RAJ

(*Continued from page* 2)

elections, the Panchayats generally hesitated to levy taxes for fear of displeasing the electorates and thus losing their chances of success in the elections. That narrow approach should now give place to a more constructive action.

LET's TALK IT OVER:

HOW TO MAKE BEST USE OF COWDUNG ?

Under this column, we had invited our readers' views on the subject: "How to make best use of Cowdung?" We have received some replies. We are publishing here one such interesting and thought-provoking reply received from Shri Ratan Singh Banthiya of village Baran in Rajasthan. Whether or not one agrees cent per cent with all the views expressed by the writer, it is clear and beyond dispute that our prosperity is largely related to the forest wealth and all-out efforts should be made to plant more and more "Bans" in every village as we did in the past.—**Ed.**

COWDUNG IN English means the excrement of cattle and in Hindi it is called "Gobar" which means the best thing produced by the cattle. The meaning **"Go"** includes cows, buffaloes, goats and sheep and **"Bar"** means the best thing.

NOT A BY-PRODUCT

How is "Gobar" the best thing? It feeds the land by its manurial value and helps grow corn for man and fodder for cattle. Fertile land is the main base of mankind. Hence anything which increases the fertility of land is the best thing for man. Man looked round for such a substance and he found that minerals and grass can be turned into such a substance. He dug out the minerals, sent them to the factories and produced the fertilisers. He also sent his cattle to the river-side pastures and hilly regions to graze the grass and to turn it into manure to be given back to the land. He fed the cattle on hay, oilcakes, cotton seeds and got them turned into rich manure for the land. He found that the manure made from the grass, hay and things like oilcakes etc., through the process of their grazing by the cattle was cheaper and more convenient than that of digging out minerals or fresh soils and spreading them on the land. In fact, out of the two types of manures, the former is essential since the utility of the latter is limited by the presence of the former and not *vice versa*. So Gobar is the most vital thing. If we cannot live without land, we cannot live without "Gobar" either. Hence "Gobar" is the best and main thing we get from cattle—milk and draught power being the by-products.

If this role of the cattle in turning the grass and non-edible things into rich manure is accepted, then even old or lame cattle come to be looked upon as useful partners in the country's economy. The produced thing is always more valuable than the raw material from which it is processed. "Gobar" is thus more valuable than what is fed to a cattle. The milk of a cow or the use of a bullock for draught purposes are absolutely free gifts to man and for that reason a cow or a bullock is never uneconomic.

Now we have forgotten the use of the best thing that is the "Gobar" and have begun misusing it. The result is that the cattle are not well looked after. The people consider the milk and draught power as the main things whereas "Gobar" as the by-product. The result is that an old or unfit bullock or cow is sent to the slaughter house. The law of the land permits this. The land is deprived of manure and man of food. This is like killing the hen for getting all the golden eggs at one time.

IN OLD DAYS

Why and under what circumstances have people considered the milk and power as the main products and "Gobar" as the by-product? This requires an answer. In olden days fuel came to the villages from **"BANS"** or **"RADIS"** or **"DANGS"**, all meaning small forests. These were found scattered throughout the country, in every village, at least one in every Tehsil. These were found on the banks and basins of rivers, in the waste lands or on the rocky lands according to local circumstances. These **"BANS"** not only supplied the fuel but also timber for building houses,

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Sons of the Soil

A Bengal Farmer Achieves Ten-Fold Increase

SHRI JATINDRA MOHAN MAJUMDAR, a farmer from West Bengal, attributes poor result in agriculture to illiteracy and lack of scientific approach among farmers. If economic and improved implements like seed-drills, hand hoe, paddy weeder, puddler, etc., can be popularised, he feels many more like him could take to farming and raise the standard of crop production in the country.

He has succeeded in raising his own farm yield by ten times through devotion, emphasis on personal supervision, using better implements and repairing them in his own workshop. A bachelor, he participated in the Salt Satyagraha and in the freedom struggle, after graduating from the Calcutta University in 1930.

Majumdar's ancestral home was at Hili, a town through which the Indo-Pakistan border now runs. Following partition. Majumdars' family property of six thousand bighas of crop land and a rice mill fell on the other side of the border, including his share of about 2,000 bighas. In 1952, he got in exchange about 18 acres of crop land in Kamarpara (West Dinajpur district). The average yield was, however, only six maunds per acre.

INTENSIVE CULTIVATION

Majumdar had a chance meeting with an Agriculture Inspector in 1956, on whose insistence he put three acres of his land under the "Japanese" method of cultivation which brought him a yield of 31.45 maunds of paddy per acre.

With added interest and zest he took up intensive cultivation and, last year, led the district in paddy growing, producing more than 63 maunds of paddy per acre, where only six maunds grew in 1952.

This was how he achieved it. He ploughed three acres of land after harvest of *aman* paddy in January. Next month he applied 30 cartloads of tank silt per acre. In April last the crop was ploughed again and 1½ maunds of superphosphate was applied before sowing of *dhaincha* at 15 seers per acre for green manuring.

In July, fertilizer mixture was applied at 30 seers per acre, followed by transplanting on the following day with three to four seedlings per hole. After a fortnight, top dressing was given with fertilizer mixture at 30 seers per acre, with laddering in two inches water, and gammaxene-dusting against possible attack of insect pests.

After a fortnight, water was drained out and the field left as it was for two weeks. Then followed irrigation and top dressing with ammonium sulphate at 15 seers per acre. A month later, at the time of flowering, the land was irrigated again.

The land was clayey and for seed bed, 7.5 seers of seed was used of varieties, Dudsar, Tilakkachari and Bhasamanik. Dudsar gave the highest yield of 63 maunds and 36 seers.

Majumdar is keen on using organic manures. His main source of cow-dung is the village market where the cattle brought for exchange deposit it. Also he uses the paddy-husk ash from rice mills, and grows *dhaincha* for green manuring. He raises his own seed and even spares for others.

Around the States

JAMMU & KASHMIR

Jammu Nominations to Panchayats

With a view to providing adequate representation to backward areas, Scheduled Castes, women and persons of outstanding ability, the Jammu and Kashmir Government has nominated 1,184 members to the recently elected 500 panchayats in Jammu province of the State. The elections were held in accordance with the Jammu and Kashmir Village Panchayat Act and 4,127 panches were elected. The Panchayats began functioning from February, 22.

* * *

MADHYA PRADESH

Sample Survey of Panchayats

More than 12,000 village panchayats covering about 42,000 villages are functioning in Madhya Pradesh at present, according to a sample survey of village panchayats conducted by the State Directorate of Economics and Statistics.

The survey, conducted with the collaboration of the Union Ministry of Community Development and Cooperation, covered 620 villages of 84 development blocks in different districts of the State.

According to the survey, about 32% of the panches belonged to Scheduled Castes, Scheduled Tribes and other backward classes. The average number of "actually working" panches was about 10 per panchayat, six of them being elected and four nominated. The percentage of female panches was about four.

The average annual income for 1958-59 was about Rs. 2,400 per panchayat, the main source of income being a share in the land revenue and donations and contributions by individuals and self-imposed and compulsory taxes. Government grants constituted about 26% of the average annual income.

The average expenditure per panchayat for 1958-59 was estimated at about Rs. 1,400 annually. More than 61% of the average annual expenditure was for development work.

* * *

MYSORE

Land Revenue for Panchayats

Mysore Government have assigned 35% of the revenue in favour of panchayats and 25%in favour of taluk boards. On an average, a panchayat would get about Rs. 4,000 per annum and taluk board about Rs. 50,000 to Rs. 70,000. This would be in addition to the resources to be raised by the panchayat and the taluk board for which sanction had been given under the Act.

* * *

PUNJAB

General Elections to Panchayats in Punjab

Elections to 13,439 Panchayats were held in the Punjab where out of an approximate total of 88,20,000 voters, over 68 lakh voters cast their votes to elect 13,439 Sarpanches and 72,603 Panches. The unprecedented amount of interest shown by rural people at the elections is manifested by the fact that on an average 80 per cent of the total votes were polled at these elections as against 56 per cent cast in the first Panchayat elections held in the year 1953 and 48 per cent in the last general elections to the State Legislative Assembly.

These Panchayats cover 20,790 villages and represent a population of 1,30,35,322. The elections were highlighted by the fact that in 3,779 Panchayats, the Sarpanches and Panches were elected unanimously, thus avoiding contest at the poll and laying the foundations for mutual goodwill and cooperation.

COMMUNITY ON THE MOVE

MASTER PLANS FOR VILLAGES

THE RAJASTHAN Government has decided to prepare Master Plans for all the villages with a population of 1,500 and more and make them available to the panchayats.

Steps are also being taken by the Government to prepare by-laws under the Panchayat Act for the regulation of house-building activities in the villages. The Panchayats have been made fully responsible for developing the villages on a planned basis.

* * *

SCHOOL BUILDING IN 21 DAYS

On a piece of land, which was flat and dusty as any piece could be, stood a pretty four-room school building in a record time of 21 days.

This happened at the village of Kasabkheda in Aurangabad district of Maharashtra. The villagers under the guidance of the local Gram Panchayat carried out the work with a lightning speed and set up a record in construction activity in the district. The members of the District Local Board also gave the necessary help to the villagers in completing their project.

* * *

FAIR HANDS DIG A WELL

The Rajputs of village Pasolia in Jhalra Patan Development Block of Rajasthan like their forefathers could not afford to see their womenfolk going to the distant well to fetch water for drinking, for their womenfolk were still *Pardah Nashins*. The poor men, therefore, had to do the job themselves. Fed up with the drudgery, they approached the B.D.O. and got some money sanctioned for a well in the village provided they contributed the requisite 'Shramdan' in the digging of the well. Time rolled on but they did not stir till at last the thundering notice from the B.D.O. came asking for the refund of the money. The brave Rajputs were still pondering and hesitating when their womenfolk getting wind of their problem, came together and decided to dig the well themselves. This was not just to threaten the menfolk into action. They meant business. The men were still laughing away at things when, the following morning, the fair hands grasped the spades and set to the task of digging the well in right earnest. And lo! in 20 days, a 45 feet deep well was ready and sweet water made sweeter by the fair hands that got it, gushed forth. The so-called '*Pardah Nashins*' did what the Rajputs with all their traditional chivalry could not.

BELKADE DOES IT !

Belkade is a tiny village with barely four hundred souls in Kolaba District in Maharashtra.

The village had a primary school housed in an old dingy place. The villagers, therefore, decided to construct a new spacious building for the school through their own labour. Once this decision was taken, the whole village acted like one man. Every household provided all the manpower it could—men, women and even children. A schedule of work was drawn up and everybody was assigned a duty. The menfolk brought earth in their carts from the hillsides around, while the women carried water to the place of construction. And the children also had their share in the work by helping their elders by doing whatever they could. About 70 to 80 villagers attended to the work every day by alternate arrangement. The work of the foundation has been completed by now and the school building is expected to be ready soon.

This Happened in a Village

COOPERATION SHOWS THE WAY

THERE IS HARDLY a village throughout the length and breadth of this vast country which has not been touched by the new wave of rural development through self-help. But the lack of adequate financial resources has often proved the main hindrance. Even after the introduction of Panchayati Raj in some of the States, the Panchayats have either been hesitant to impose new taxes on the village people or even if they have gone ahead, the realised taxes have generally been inadequate to cope with the needs. They only wish if they could hit upon a hidden treasure and turn it for the good of the community. The small village of Belgaon in the backward district of Chanda in Maharashtra has indeed got the "open sessame" to a perennial treasure.

MAIN QUESTION

This village community had been hard pressed for money to undertake successive development schemes. The villagers first completed the building of the Primary School partly through Shramdan and partly by raising cash contributions from the villagers. However, a long list of community works like drinking water well, roads and drainage awaited execution. "From where was the money to come?"—this was the main question that confronted the villagers. Their economic condition was so poor that some of them had felt the pinch while making contribution for the school building.

THE SOLUTION

The village elders took joint counsel and struggled for a solution. But none seemed to see the light. It was the suggestion put forward by Shri Shridharrao Padmwar, the young enthusiastic agricultural graduate now settled in the village, that a ray of hope lit the dull atmosphere. He suggested that they might purchase the 80 acre plot of land lying waste since the absentee landlord lived seventy miles away and neglected its cultivation. He argued that if the land was reclaimed and cultivated properly, this would be a fruitful source of regular income to them and they would not be handicapped in their development schemes for shortage of funds. Everyone liked the idea, for besides ensuring regular income to the community, this held out the prospects of gainful employment to many of them who had not adequate land for cultivation.

RARE SACRIFICE

The village leaders met the absentee landlord and persuaded him to part with the land for Rs. 18,000. Thirty-five persons came forward who by pooling their meagre savings and borrowing money from others managed to meet the cost of the land. They voluntarily agreed to carry on cultivation on a cooperative basis and to utilise the entire income for works of community interest. They even registered the Society in the name of Gram Vikas Mandal charged with the duty of looking after the development of the whole village. It was indeed an act of rare sacrifice on the part of the members of the Society.

FORGES AHEAD

The Society reclaimed the waste land and started cultivation according to improved farming techniques. It sunk a tubewell for providing irrigation. It soon got into stride. The income went on rising, till this year it reached Rs. 15,000. This amount was pooled in a village development fund. With matching contributions out of this fund, and the grants-in-aid from the Block, the Society built a Panchayatghar, constructed 3½ miles of road, paved

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COWDUNG GAS PLANT

(*Continued from page* 6)

to conserve the dung for manurial purposes. Experiments carried out have proved that the digested manure from the gas plant is in no way inferior to farm manure. Actually, it is somewhat richer in manurial constituents than the original dung or farm manure. Since it may not be convenient to take the slurry to the field every day or to dry and store it, the best way of utilising it is by composting it with farm and other vegetable wastes in trenches.

USES OF THE GAS

The gas can be conveyed anywhere through G.I. pipes. For cooking, it can be burnt with hot non-smoky flame in any suitable burner or gas cooker. The gas hardly needs a pre-mixing of air and where costly burners are not available simple tin burners can be efficiently used, the flow of gas being controlled by gas taps.

Gas lamps, with gas mantles specially designed to work on cowdung gas, are available in the market for about 25 to 40 rupees each according to the size asked for. Gas mantles are a structure of ash of certain substances. If any shock or jerk is received they crumble down but when handled with care they last for months.

Frequently, it is asked whether the gas can be made to run engines for power generation. Yes, it can be used for running petrol or diesel engines with slight alterations. However, the rate of gas consumption is rather high (16—18 cu. ft. of gas per hour per engine horse-power). Therefore, for running engines large-sized gas plants with big capacities are necessary.

SATISFACTORY WORKING

The gas plant meets all the requirements of hygiene and sanitation in that there is no fly or mosquito breeding anywhere near it. Maggots of flies placed in the slurry have been found not to survive. There is no bad smell emitted and the plant can be located well near the kitchen, which reduces the length of pipe line. The gas is non-poisonous in nature.

The cowdung gas plant has been given a fairly intensive trial under actual village conditions and it is running quite successfully in many farmers' homes without any serious breakdown for the last 6 or 7 years. It has, no doubt, failed to work satisfactorily in some homes not because of any inherent defect in the plant but because sufficient care and attention had not been bestowed on its upkeep and maintenance.

HOW TO MAKE BEST USE OF COWDUNG ?

(*Continued from page* 10)

constructing bullock carts and agricultural implements; attracted rain and checked soil erosion. Every farmer was allowed to get wood from such jungles free of charge or for a nominal charge. For fuel they cut only the small branches of the fuel trees, not hurting the main trunk in any way and the tree would bear fresh branches every year.

The ignorant rulers and the greedy contractors cooperated in abolishing these "BANS", depriving the cultivators of fuel and the latter had no other alternative but to burn the "Gobar" cakes instead. The result was that agriculture suffered and the farmer began to look upon milk and draught as the main uses of cattle.

The proper thing to do is that we should again plant "BANS" in every village to supply fuel to the cultivators. Trees planted today will be ready for silent service of mankind within a period of 5 years. **BANS, PROSPERITY, HEALTH** and **PEACE** are the four corners of a square. The square is not square at the moment. It is tilted on one side. If the "BANS" corner is made a right angle the remaining three will automatically become right angles.

USEFUL TIPS

A USEFUL BONE-DIGESTER

A BONE-DIGESTER for commercial utilisation has been designed and successfully experimented upon. The experiments have shown that bonemeal could be produced very economically with the help of this digester. About 70 to 75 per cent steamed bonemeal is obtained after digesting and the cost of the digestion comes to Rs. 25 per ton. Even without taking into consideration the cost of tallow and glue which can be recovered as by-products, the steamed bonemeal is found much cheaper than the raw bonemeal. The experiments have further proved that the digester can cook per charge 240 lbs. of bones if the bone pieces are cut less than 1½ inches in size. Four charges can be taken in a working day of 8 to 9 hours. Thus, 1,000 lbs. of bones can be cooked per day. In 225 working days in a year, the digester can cook 100 tons of bones. If the bone pieces are bigger than 1½, its bone-holding capacity is lessened. It has been found on the animal mortality basis that about a ton of bones are produced per village in a year. If this newly designed bone-digester is located in a central place surrounding some 100 to 125 villages and the bone-collection arrangements are efficient, bonemeal of superior quality could be made available to provide organic manure for the area.

WATER FOR WHEAT

Experiments have conclusively proved that the optimum irrigation supply for wheat is ten-acre-inches of water. There is very little difference in yield between crops that were given eight acre-inches and 14 acre-inches of water. This means that any excess water given to wheat is a waste. To get the best results, water was applied thrice. The first irrigation was of four acre-inches, and was given at sowing time. The second of three acre-inches was given 50 days later and the third of three acre-inches was given 50 days after the second.

For the irrigations to be effective, water should be given in furrows made by working a desi plough between the lines of the crop.

NO ROTATION FOR CHILLI

Unlike most other crops, chilli gives higher yields when grown year after year in the same land instead of being rotated with other crops like groundnut, tobacco and jowar. This has been seen at the Agricultural Research Station at Lam in Guntur District (Andhra Pradesh). Regarding planting time, chilli was found to give the best results when planted in the first week of September. Planting seedlings in single, spaced at 5½ inches, in rows 22 inches apart was found to be the best planting method. For getting the best results, seedlings should be transplanted when they are six to eight weeks old.

A NEW WHEAT

Those who have to sow their wheat late will find N.P. 792 the variety they have been waiting for. The new wheat variety was evolved at the Indian Agricultural Research Institute, New Delhi. This can stand delayed sowing very well. It is a quick-growing and early-maturing variety. When sown between the middle of November and early December it flowers in about 114 days.

Cooperation shows the way

(*Continued from page* 14)

village streets, provided drains, and carried out repairs to drinking water well. The village has now got a cattle breeding centre, a *balwadi*, a youth club and Mahila Mandal, and a farmers' union. The cooperative society has purchased its own plant protection equipment. In all, the Society has so far spent an amount of over Rs. 17,000 on various schemes of village development.

Truly, Belgaon has shown the way of attaining self-sufficiency in local resources by building up remunerative community assets. This is an advance on the conventional method of tax collection in as much as it seeks to increase production and also to offer productive employment.

Cooking and lighting with cowdung gas in a village home.

Cowdung Gas Plant in service for the last 6 years in Shri Lakhi Ram's house in Nangloi village, Delhi State.

Printed by the Manager, Government of India Press, Faridabad, and published by the Director, Publications Division, Ministry of Information and Broadcasting, Delhi-6, on behalf of the Ministry of Community Development and Cooperation.

Regd. D—877