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[Signature]

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September 7, 1964 *L. Blu BKS.*

TO: ARA - Mr. Thomas C. Mann

FROM: S/P - W. W. Rostow

SUBJECT: Reflections and Recommendations on Brazil.

I am conscious, of course, that two weeks of whistle-stopping in Brazil are an insufficient basis for knowledge and firm recommendation. Nevertheless, I should like to put the following thoughts on paper. With the exception of the comment on agricultural development in the Brasilia region, to which I only referred casually while in Brazil, they have all been discussed with Amb. Gordon and the country team.

Impressions.

1. Brazil in general. Castelo Branco is a remarkable Latin American chief of state. He described his government to me as one that "was modest, united, and marked by an integrity which would lead it to do what it said it would do." He and his government take the two-year plan seriously. The plan will be thoroughly discussed in public and represent a formal national commitment. The government is acting, step by step, in many fields more seriously, if undramatically, than one supposes at this distance.
2. On the other hand, it started with the initial handicap of Goulart's commitment to raise the wages of the military. Although that commitment was cut back, it nevertheless set in motion a rise in the wage floor which has delayed the constraint of inflation from the demand side. Moreover, one of the objectives of the Castelo Branco government is to move in ways which do not excessively disrupt Brazilian institutions and the Brazilian nation. It is, in that sense, a "moderate" government. In pursuing this policy, Castelo Branco believes

that what

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E.O. 13292, Sec. 3.4
By *16/jc* NARA, Date *11-4-09*

that what the Brazilian revolution did for the Free World (and especially the U.S.) geopolitical position, combined with the seriousness of what they will do, and combined also with the advantages of this kind of "moderate" government as opposed to a government further to the left or further to the right, justifies large and sustained external assistance.

3. Within the limits of this position, there is a good deal in what Roberto Campos says in private; namely, that we should try to understand that this is the best government that Brazil could now muster, and that those who make its economic policy are as profoundly committed against inflation as any Latin Americans could be and as technically competent as we could find in Brazil.

4. On the other hand, outside the government there is a mixture of frustration and an anxiety to see more rapid and dramatic results. The present situation is one where, while Campos and Bolhães conduct their surgery, designed to raise tax collections and cut deficits, the economy is sliding sideways. This is not merely the result of some deflationary action but also a consequence of last year's drought which not only limited the current supply of agricultural products, but also limits, notably in Sao Paulo, the supply of electrical power.

5. When this widespread attitude of public frustration is probed, it comes down to a desire to see:

- a. radical reduction in inflation, if not its elimination;
- b. rapid forward momentum in its economy.

6. There is also much frustrated talk, notably in Sao Paulo but also elsewhere, about a continuation of "corruption." There is little doubt that the present government, at a high level, is as free of corruption as any Brazilian government could be. I cannot speak about lower levels; but I sense the talk of "corruption" is a reflex of frustration in other directions.

7. I conclude

7. I conclude that the government has a limited time period -- perhaps a year -- in which to produce dramatic results in Brazil, both with respect to inflation and the resumption of rapid forward movement. I cannot predict what form a political shift would take. It is likely to come, initially, from the right, although it is likely to pick up political support from anti-U.S. nationalist, left-wing groups as well. Lacerda's present stance is almost certainly based on an assumption that the present line of policy is likely to fail and that a more classic anti-U.S. nationalist line will become more appropriate in the future.

8. Technically, we should focus our minds hard on the wage negotiations that will be going forward in the next months. Thus far, according to a detailed briefing I received on my last day in Rio, the government has been holding the line rather well on the wage formula built into its plan; namely, that money wage increases should be geared to correct for past increases in the cost of living over an average period plus small allowance (1%) for productivity increases. These come now to increases between 70 and 90%. Moreover, bonuses granted over the past year are being taken into account; and the current wage bargains will hold for a full year without automatic escalation with cost of living movements. I gather the "battle of the bulge" will come in October, in a negotiation with the metal workers who are critical in a number of respects. Here the government will have to be tough in order to avoid breaking the line; and we should do all we can do to make it possible to get an austere wage deal by trying to mobilize relevant housing plans, via the U.S. unions, etc.

9. The most hopeful single feature of the Brazilian scene is the heavy fall of rain. This promises both to ease the power shortage and, quite possibly, to yield a bumper harvest which would begin to arrive in early 1965. The government is doing all it can to increase agricultural credits, offer the farmers minimum prices that would actually get to the farmers, expand storage facilities, etc. We must cooperate to the hilt in this effort, which could be the instrument for decisively turning the inflationary flank in Brazil.

10. The Northeast.

10. The Northeast. In the northeast I found, as elsewhere in Brazil, a mixture of energy and serious interest in getting on with development, disorganization, and frustration. Even more than in Sao Paulo, one has the feeling that the government is living on sufferance, for a limited period of time. If there is no evidence of serious forward movement, the impulse to try something else more radical is likely to be strong. Even more than Sao Paulo, there is a consciousness that inflation is bad for development of the region.

11. So far as SUDENE is concerned, there is a pragmatic, energetic attitude; but, of course, the outfit has not shaken down in the wake of the revolution. There are unresolved personnel problems. On the whole, the new boss looks quite promising as well as more modest. Anything we can do to help him recruit good people would make sense.

12. There is a general understanding in SUDENE that more has to be done about agriculture than in the past and less hostility to the private sector.

13. Technically, three things have to happen:

a. The infrastructure business, which is the easiest and most familiar, must be streamlined and made more efficient with respect to:

- project preparation;
- project review and validation;
- project execution.

The compounding of our bureaucratically muscle-bound procedures and SUDENE's has produced quite a lot of frustration.

b. SUDENE appears interested in doing something about agriculture directly, but, except for the marketing field, where all agree there is much to be done -- and CEDA is generating some projects which ought to be vigorously pushed --

I do not

I do not quite see how SUDENE can do the job, except to generate and execute road (and especially feeder-road) projects with greater efficiency and to use its influence to get more chemical fertilizers applied in the region. I may be wrong. They may be able to generate big new agricultural projects. But I'm not clear how they would do it. For example, a modernization of sugar production and processing in all its aspects is obviously critical. But here the central figure is -- and should be -- the young sugar magnate who is looking for guidance, technical assistance, and capital. I should think we would wish to work directly with him.

c. The most promising development is the private sector "institute" now being set up. This deserves all the support we can muster. There is a group of industrialists of some competence and dedication. They have emerged from a classic list of "preconditions" industries; i.e., food processing, soft drinks, textiles, paper, cement, etc. They will need much help to get on to the leading sectors for the northeast take-off. The industrial leading sectors for this regional take-off will prove, I predict, to be three:

-- more advanced processing of local agricultural produce and raw materials; e.g., sugar (to alcohol, rum, rubber, etc.); meat packing; Bahia gas to chemical fertilizers; salt to chemicals; low grade timber to pulp and paper; etc.

-- agricultural inputs; e.g., chemical fertilizers; agricultural equipment; hand tools; etc.

-- consumer goods manufactures for the large (if low-income) local market. This is the most promising, if most difficult, sector.

14. The place to start is by backing the private sector institute now being set up. In quiet bilateral conversations the local industrialists all say the same thing: there are industrial opportunities; but they need help in developing private sector projects. I would add that a real industrial

surge in the

surge in the northeast will require an influx of Sao Paulo, U.S. and/or Western European firms, because they will need capital and administrative skill as well as project development to set the show on the road.

15. Brasilia. In Brasilia I was struck by the anomaly of this remarkable tour de force surrounded by land which has great agricultural potentiality. Even to my amateur eye the red soil immediately around Brasilia is capable of utilization with modern methods which would exploit the ample water table which underlies it, if appropriate chemical fertilizers were applied. Beyond the red soil area there is vast land which is obviously capable of development, certainly for cattle and quite possibly also for grain. On the way back in the plane, I read the chapter in Jonathan Garst's book NO NEED FOR HUNGER, on Brasilia, which I shall have reproduced for wide circulation. The key to the development of the interior may well be an agricultural development program built out from Brasilia.

Strategy for Brazil.

16. Broadly speaking, as I explained widely in Brazil, the strategy for the next decade is to move from the import substitution take-off, which was achieved in southern Brazil, to a national development program which embraces fully the agricultural areas. The task in the northeast is to move into a take-off in a situation where most of the preconditions now exist. The analogies with southern Italy and the TVA area circa 1933 are strong and relevant.

17. In the short run, the object of policy should be to remove inflation and re-start development at high momentum.

18. The object of the proposals that follow is to produce in coming months a sufficient change in the inflationary prospect to justify an "optimum" aid package; to do so by means which engage the energies of the frustrated Paulistas and other dissidents; and to do so by lines of short-run action that lead naturally and legitimately on to medium and long-run policies which are "correct" for the next stage of Brazilian development.

19. The strategy

19. The strategy is built on the exploitation of a fact and a situation. The fact is that Brazil now suffers from substantial idle agricultural and industrial capacity. The situation is that expectations about wages (and therefore future prices) are sensitively geared to movements in the cost of living; and some significant aspects of the cost of living index are relatively insensitive to money wage movements.

20. The strategy can be described as an effort to marry the "moderate" attack on inflation from the demand side with an "energetic" attack on inflation from the supply side.

Proposals.

21. Against this background of the situation as I perceive it and a broad strategy, I propose the following. First, that three programs immediately be set in motion with respect to agricultural items in the cost of living index.

a. An immediate action program, designed to bring to the key urban markets, as quickly as possible, commodities available within the various regions of Brazil plus those that could be mobilized from PL 480 or otherwise from abroad. The aid of the state governments and even the military might be mobilized in this crash effort.

b. A program for the next harvest, designed to do two things:

(1) ensure that there is minimum wastage of the hoped-for bumper harvest, via efficient transport, in order to maximize its impact on the cost of living index; and to provide emergency storage for any surplus as a carryover to 1965-66.

(2) ensure, via credit, seeds, enlarged chemical fertilizer supply, etc., that the 1965-66 harvest is a maximum, within limitations of weather.

c. A systematic

c. A systematic 3-5 year agriculture production and marketing program involving extension of Japanese and Asimow techniques; new marketing institutions and methods, storage, transport, credit; etc.

22. With respect to manufactured goods important in the cost of living index (as well as input to agriculture) task forces would explore the willingness of the private sector to expand output and pass along the benefits to average costs in the form of lowered (or relatively lowered prices). Textiles, shoes, household equipment, as well as farm tools and equipment and fertilizers should be considered.

23. Knowledge of this program against the background of a bumper harvest might shift expectations about future living costs and money wages; the Paulistas and other frustrated activists would be put to work and asked to do something, notably on the side of manufactured goods but on food mobilization as well; and Brazilian development would be turned, in this crisis period, towards the path of urban-rural integration it needs to follow in the decade and generation ahead.

24. With respect to the northeast, we should build as rapidly as possible on the private sector institute which is being created in Recife and to do whatever we can to encourage the bringing in of modern industry, in the categories indicated earlier, from Sao Paulo, the U.S. and Western Europe. With respect to Sao Paulo, taxes might be constructed in such a manner as to make it attractive -- almost mandatory -- that some of Sao Paulo enterprise be allocated to the northeast. European firms should be sought to help finance and manage a build-up of the out-of-date textile industry in that region. And U.S. firms should be encouraged, both by the Brazilians and by ourselves, to move into the area in partnership arrangements, if possible, with local industrialists.

25. With respect to Brasilia, I should like to see some U.S. firms already engaged in Brazil -- the Ford Motor Company producing agricultural equipment is the leading candidate -- take the lead in setting up a large demonstration area to prove what could be done with modern methods in the agricultural

region around

region around Brasilia. I have a hunch that George Woods would be willing to put money into such a big agricultural development scheme. Perhaps some Brazilian Sao Paulo firms could also be induced to support such a Brasilia Agricultural Production Corporation. This would not only be enormously important in itself but would help lead the industrialists engaged in Brazilian development to take the kind of responsibility they must take in generating their own future markets, by going to work in agriculture.

26. This latter observation I would wish to convey as strongly as possible to David Rockefeller and to the whole U.S. private enterprise community interested in Latin America. The situation in Brazil -- now reinforced by the election of Frei in Chile -- gives us a rare and perhaps transient interval of opportunity. We could not conceive of a government in Brazil more mature, more level-headed about relations with the U.S., and in its attitudes towards private enterprise. But this equilibrium and good sense will prove transient unless it produces clear, big results. In such circumstances, U.S. private enterprise cannot properly sit back and behave in the parochial manner typical of Brazilian private enterprise; that is, exploiting rather passively the profit possibilities of import-substitution and awaiting for someone else to develop agriculture and wider markets. They must lead the way in the modernization of Brazilian industrial attitudes and price policy. They must lead the way in helping create the agricultural revolution which is the key to the next phase of Brazilian industrial, as well as national, development. I am sure something of the same is true in Chile and most of the rest of Latin America. I therefore believe we must have a heart-to-heart talk with David Rockefeller soon in terms of this proposition in general and the Brazilian and northeast propositions which relate to private enterprise in particular.

27. Finally, I think we need in Washington a very tight and alert Brazilian team, whether we call it a task force or not. The next months in Brazilian policy are quite as important as, for example, the Chilean election, even though we do not

know

know the date of the Brazilian "September 4." But we should be clear such a day of reckoning is in the works. We must have the same sense of urgency as we showed in focusing on the Chilean election. I do not know the details, but, from the field point of view, there has been real sluggishness about: the release of cruzeiro funds for the promising, even revolutionary, program of building farm on-site storage facilities; in getting a guarantee, in principle, for AFL-CIO loans for workers housing, which, at the right time and place, could make all the difference in the wage bargains the government might strike in the forthcoming "battle of the bulge"; in simplifying, within the law, the preconditions for the financing of road projects which drive some of our best friends in Brazil to desperation, which must be seen face to face to be understood. In addition, of course, we shall be facing the Brazilian two-year plan and looking to its review by CIAP, in general, and its component organizations, as well as the IMF, in particular. All of this requires and justifies, it seems to me, a sustained focus on all the elements of the problem, by all agencies, with an awareness that within our grasp may be the historical turning point in the history of modern Brazil.

28. I came away from Brazil feeling that the raw materials for such a decisive turn around are present in Brazil, if we on the outside stretch to the maximum our marginal capacity to influence the course of events.

Chapter 12 -- Brasilia: Bringing Vacant Lands Under Cultivation,
from NO NEED FOR HUNGER, by Jonathan Garst

Brazil south of the Amazon Basin is a plateau, the edge of which faces the South Atlantic. The plateau rises directly behind the coast and its principal ports of Rio and Santos. Sao Paulo is only forty miles from Santos, but it is twenty-five hundred feet in elevation and the rivers at Sao Paulo drain away from this coast west and south to enter the ocean in the La Plata estuary at Buenos Aires.

Much of the land near the coast is hilly, but the soils are fairly rich, the forest has been cleared -- and this is the area now farmed. Eighty per cent of the corn is still planted on these hillsides with hoes.

The Tropic of Capricorn (it corresponds in latitude to Key West, Florida) passes close to Rio and Sao Paulo. Below that, Brazil narrows into what we would call a panhandle. This narrow strip is in temperate latitude; it is a relatively rich farming country: cattle, rice, wine grapes and a little wheat. Here there are occasional frosts.

The bulk of the country lies north of Rio and Sao Paulo. Six hundred miles directly north of Sao Paulo is the new city of Brasilia. This is the interior, the "Sertão" of Brazil. It is high, rolling plateau country. It is nearly vacant -- the largest area of practically open land with a favorable climate left in the world. But for the pioneer it was useless.

We in the United States pride ourselves on the opening of the West -- the government-granted homestead, the covered wagon, the one-room country school with a schoolteacher who came from the East and married a local bachelor farmer. That is the way we opened, settled and populated our great prairie and plains states. And not so long ago -- it was still going on when I was a boy. There was even a burst of homesteading after the First World War.

We are of course a great pioneering people -- strong, resolute, God-fearing, and hard-working. There must be something wrong with the Brazilians, and something just a little bit wrong

with all

with all the other benighted people on the earth. There probably is, as far as that goes, but maybe we are not quite as wonderful as we think. Part of our success might be due to landing on a good continent. The pioneer in our West could unhitch the team from his covered wagon, break out a piece of prairie sod, plant a garden and some corn, and it grew. In fact, it grew so well that we have a well-established myth that virgin land is richest of all. Of course, a Midwest farmer now has to grow two or three times as much per acre as his grandfather got off that new land he opened up, but still the grandfather was producing more than most farmers in the world, more per acre than most farmers still produce.

Maybe if Americans had landed in Brazil they would not have been so outstanding. Some of them did. After the Civil War some former slave owners of the Confederacy migrated to Brazil, where slavery still existed. When I was in Brazil in 1942, I remember stopping at a village on the Amazon. There was quite a gathering of people at one place and my friend and I went over to see what was going on. A cow had just been butchered and the meat was being sold right off the fresh carcass; there was, of course, no refrigeration. We were approached by a barefoot man in the usual cotton trousers and shirt. He had a peculiar request. He wondered if we could tell him how to spell the name "Archibald." This was his own name, the only remaining inheritance from some slave-owning American ancestor, and somehow the right spelling was in dispute.

A farmer's life is conditioned not only by his social environment but by the land itself. A pioneer in a covered wagon entering the interior of Brazil, say, around Brasilia, could have cleared a few scrubby trees, plowed under the sparse, tough grass, and planted some corn -- and the corn would have grown about three inches out of the ground and died, starved to death.

But here in the interior of Brazil there can be a modern farming frontier. Here is a vacant land with good climate, a high potential, and only nature to contend with. In most undeveloped countries the problem is people. Around Brasilia the problem is how to make the land produce.

For over

For over three hundred years American farmers battled gloriously in subduing a continent and making it yield. And all of a sudden we find we have gone too far -- cut too many woods, drained too many swamps, plowed too much prairie, and grown too much food.

The technical problems are different around Brasilia. They would have been too much for an American homesteader of a generation ago. They are not too much today. In fact, tackling the problems here would be downright fun. It would renew the youth of every American scientist and farmer, and even of our calculating industrialists who had a hand in moving on to a piece of land at Brasilia and making it produce. Here is a proposal:

AN AMERICAN DEMONSTRATION FARM AT BRASILIA

Brasilia is a unique and exciting city. Not only are the architecture and the city planning supermodern, the location is extraordinary. This capital of Brazil is being built in the wide interior of the country. Opening up the interior has long been the dream and hope of Brazil. Brasilia was based on that hope. There are already 200,000 people there. Roads are pushed out to the corners of the country. In a few years Brasilia may have a population of 500,000, but so far practically nothing has been done to develop the countryside, and after all, this was the real purpose of building the city in this faraway place.

The Federal District in which Brasilia is located is large -- thirty-five by forty-five miles. It is at the parting of the waters: the north part drains into the Amazon, the west into the Parana, which flows down past Buenos Aires; on the east it drains to the Sao Francisco River, which reaches the ocean far north of Rio. The area is a high plateau 3500 feet in elevation. It never gets hot. It never gets cold. The temperature stays between sixty and eighty degrees throughout the year. It has seasonal rain: fifty-five inches in the six months November through April, five inches in the six months of the dry season, May through October. It is a highly habitable area. This is the interior of Brazil, the tractor land, the future of Brazilian agriculture.

But this

But this is no Midwest waiting for the plow. It is mostly scrub forest with tough wiry grasses between wide-spaced trees twenty to thirty feet high. It has been poor, sparse grazing land -- thirty or forty acres to the cow -- and with only the scattered population such an economy will support.

The vegetation looks stunted, like in the arid lands of the Southwest. But this is not a dry country. The only thing wrong is that the soil is infertile. This is one of the oldest land surfaces on the globe; with sixty inches of warm rain a year, with very little surface runoff, with billions of years of time, the percolating rain waters have leached the soil of all soluble plant food. It lacks nitrogen, calcium, magnesium, phosphorus, sulphur, and potash. The soil looks red right up to the surface. It provides little more than moisture and root support for the plants. But it is easily cleared, friable, and easy to work -- and now we know how to provide plant food. The land around Brasilia can be made to bloom.

It would be a wonderful, spectacular contribution to Brazil for America to put in a demonstration farm near Brasilia. Americans are almost uniquely able to do this. The agricultural revolution, while not limited to the United States, is certainly most advanced here. Moreover, much of our knowledge, our know-how, our machinery, our chemicals, our foundation stock in animals, and some seeds will be applicable at Brasilia.

Such a demonstration farm would not just be something to show off. Forty per cent of the plow land of Brazil is similar to the scrub land around Brasilia. This type of land in Brazil is called the "Cerrado." There are other parts of the hungry world that have like conditions. Brazil must learn how to farm such areas. Much of her farm production now comes from the hilly areas near the population centers along the coast. Farming on these lands cannot be mechanized, but an industrial, urbanized Brazil is not going to be fed with a hoe, a backyard hen, or a cow milked once a day. Brazil has the energy, the spirit, and the urge to forge ahead; and Brazilians are wildly anxious to learn how to develop their country. They are anxious for demonstration farms. They point out that it is much easier to learn by seeing. Actually, of course, Americans too will be tackling something new at Brasilia; however, the problems there are not ones of basic research, but of adaptation of farm practices already used.

First of all, there is the problem of how to establish such a demonstration farm. It has to be a commercial operation -- that is, it will have to produce and sell. The market is certainly at hand because Brasilia imports all its food from developed areas in Brazil. But a food-growing-processing-marketing business does not fit into the pattern of a governmental operation in either the United States or Brazil.

On the whole, it would be best for an American demonstration farm at Brasilia to be a non-profit corporation with an American government agency as the residual beneficiary.

The work can be started by a grant from the A.I.D. The buildings can be paid for by grants of feed grains for the livestock operations, and continuing grants from the A.I.D. for experimental and demonstrational costs will have to be part of the picture. In possibly five years -- and certainly not over ten -- such a farm should be sold to Brazilians as a profit-making concern.

It might be well to make a tentative outline of what presently looks to be the logical course of operations at Brasilia. First of all, a little quid pro quo from the Brazilians: a long-term dollar-a-year transferable lease on a thousand acres, or a thousand hectares on a paved road with an electric power line, close to Brasilia. The starting job will be to clear the scrub. Heavy machinery should be available from road-building contractors and the use of an anchor chain between two heavy tractors has been practiced in Brazil, though possibly not on Cerrado scrub. This operation would fit the land for the plow. Another, cheaper method has been suggested by Brazilians. Cut the trees at ground level and paint the stumps with a hormone weed killer so they will rot in the ground. In the meantime it would be possible to start pasture.

The next step after clearing will be fertilization. Fortunately, there are outcrops of limestone within the Federal District. Two tons of limestone per acre will probably give enough of a basic dressing in calcium, magnesium, and the micro-plant-food elements to bring this land up to a position to receive what we consider normal fertilization of nitrogen, phosphate and potash, and, at Brasilia, also sulphur.

The limestone

The limestone at Brasilia is exceedingly hard; it will take heavy equipment in the quarries. But if farming is going to expand on the Cerrado, limestone application will have to be commercialized with large spreader trucks for hauling and application. Such a business could be an offshoot from a demonstration farm and make it easier for other farms to start.

The most obvious crops for the fertilized Cerrado are perennial African grasses. These are already extensively used in Brazil. Curiously, none of the native grasses of Brazil are equal to these African species. This, however, is not altogether surprising, since many of the pasture grasses in the United States are imported varieties. Some of the African grasses are suitable for grazing, others for field-chopping and corral-feeding, or for hay or silage. These grasses have a very low mineral requirement and, of course, a very low mineral content. They will have to be fed along with supplementary minerals and with protein supplements; with cattle the protein can be in the form of urea. Such feeding will be new in Brazil. It holds enormous possibilities for beef and milk production.

Another low-mineral-requirement native Brazilian plant, mandioca, should prove useful. This plant produces a starchy root; dried and made into flour it is a staple food in many parts of Brazil, but it is also used for feeding hogs and should do as a concentrate for cattle, especially dairy. The root is very low in protein and minerals.

When it comes to grains, more fertilizer will be required; in the United States we raise twenty-bushel-an-acre corn yields to a hundred bushels by using fertilizer. They have a very good hybrid corn seed available in Brazil, and there is no reason to think it will not be economical to grow corn here with modern machinery, chemical pest protection, and heavy fertilization. Machinery for corn -- the most widely planted crop in the United States -- is so far advanced that hand labor even at five cents per hour cannot compete with it.

Another American crop that would appear to be adapted here, especially for the dry season, is hybrid sorghums. These have not yet been tried out in Brazil.

In thinking

In thinking of crop production it must be remembered that there is a round-the-year growing season here as far as temperatures go and seven or eight months with more rain than summer corn-growing months in our Middle East. Also, there is so much land available that it may be possible to hold moisture in the ground by fallowing during the rainy season, to produce a crop in the dry season. This land has been sterile only because of low fertility. After the land around Brasilia is dressed with limestone, a few hundred pounds of fertilizer per acre will supply the key minerals and nitrogen for a good grain crop. A 100-bushel corn crop extracts less than 400 pounds of dissolved nutrients per acre from the soil.

The livestock situation in Brazil shows a wide variation in the use of modern methods; poultry production with balanced rations and high yields is in some places as far advanced as in the United States. Hog production is much less modernized and, in general, dairy production is in a primitive stage. Beef cattle are raised on range pastures, without provision for feeding during the dry season, and generally are not ready for market until they are four years old.

The main need in poultry production is to have more of it. There is a shortage of eggs, especially good well-handled eggs, in most of Brazil. There is very little broiler production, but the techniques are well known and in some parts well established. There is no production at present around Brasilia; for that matter there are plenty of other cities in Brazil where the poultry and egg supply is mainly from backyard hens. The problem in poultry has largely been one of financing facilities in a country where industrialization was taking precedent. However, even here hybrid chickens are not available. Modern processing and packaging equipment and cold-storage equipment are not common, so a demonstration unit would be very useful.

Hogs offer considerable hope for Brazil. Pork is high, lard is short. Hog production has been expanding, but the close-confinement techniques which would seem to offer great possibilities in a country with many diseases and pests have not yet been introduced. In fact, the whole program of efficient hog production badly needs demonstrating in Brazil.

Dairy

Dairy is even worse, yet it offers probably the greatest hope for improving diets. Because of diseases and insects, corral- or even barn-feeding, which is widely practiced in the United States, would seem highly advantageous in Brazil -- yet it is, apparently, unknown. The cows are poor yielders, the supply is negligible: 25,000 quarts a day for a city of 500,000. The techniques of processing, even sterilizing, fresh bottled milk, are well known but the production of milk is inefficient, costly, and terribly inadequate. A modern dairy at Brasilia would be a wonderful thing for the whole country.

There should be a feed yard at Brasilia for beef cattle. This need not be a fattening yard, though that would be useful, but it should at least be a silage and hay-feeding yard to hold cattle over the dry season. Many of the slaughter animals in Brazil are driven in herds over long distances, and short feeding near points of slaughter would appear to be desirable at any season.

The above outline is certainly rough. It lacks all detail and probably some main points. It does, however, show the multiple needs for American-method demonstration in Brazil.

Successful farming is a highly complicated, highly technical enterprise. If a non-profit corporation undertakes this work, many of the ventures should be subcontracted to competent technical people or companies.

The project can be quickly manned by Brazilians. For one thing, United States training will not be wasted if similar facilities are erected in Brazil.

An American demonstration farm with processing and marketing facilities could do much to open the area around Brasilia to family-sized commercial farms. A small dairy farm can operate if there is a pasteurizing and marketing establishment available. A poultry farm can be a family affair if there is a feed mill within reach. Pastures can be carved out of the scrub if some commercial concern is prepared to deliver limestone and fertilizer.

There is no

There is no lack of managerial talent in Brazil, nor of the type of laborer who quickly becomes skilled. Brazil has already expanded industry in many directions. But farming has been neglected not only by Brazilians but also by our A.I.D. programs. Brasilia offers a unique opportunity -- not to give advice, not to continue research, of which there has been plenty, but to show how to grow food where it is needed.

oOo