

The Role of the Family, Kinship and Rural / Urban Migration in the Processing of Solid Waste in Cairo

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I. INTRODUCTION AND ABSTRACT

This paper (1) is directed mainly at issues seldom discussed by sociologists but which are current in the recent concern for the urban environment and the formation of social policy strategies.

Quite unlike the cities of Europe and North America, Cairo has no publicly organised solid waste disposal system. Instead, and with little cost to the public, the waste from the dwellings of the eight million people of Cairo is almost entirely digested within the city itself.

This paper describes how such economic and ecological efficiency is achieved through kinship solidarity, migration and cross-ethnic relations. In cooperation with a community of migrants originally from the Western Desert ; squatter communities systematically sort the urban domestic waste into marketable components and raise pigs. A steady influx of new migrants absorbs the increasing volume of waste due to the expanding city and replaces retiring vertically mobile old migrants. Development strategies and the issue of the human costs of the system is discussed in the final section of the paper.

II. THE PROBLEM OF SOLID WASTE

On the average no matter what way of life is involved, each person generates a daily quota of waste which must be disposed of. Since cities are densely populated by millions of people, removing this waste has become one of the most costly and problematic of public operations. The rates for domestic waste production vary depending on what is consumed and therefore depend generally on the standard of living and the level of technology of the society. In such cities as London or New York, the average rate of production of waste has been increasing more and more over the years. Such production has been increasing at a rate of 2 % per capita each year and has reached a mean of 317,520.00 Kilograms per 1,000 inhabitants annually for urban

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areas in the United States (El-Hakim and Markoff 1973). In Cairo it is estimated that some 4000 tons of waste is removed daily or some 1,460,000 tons annually (Al-Ahram 22-9-1976).

The greatest problem that waste presents is not only its physical removal from where people live but in its final disposal : dealing with the millions of tons of waste once collected. For example, not counting factory and commercial wastes, New York City must destroy some 12,000 tons of domestic refuse everyday or 4.3 million tons per year at an enormous cost in tax funds. Typically such ecologically dissatisfying operations as in incineration, land filling and simple ocean dumping has been the usual means of destroying what garbage city people produce (Muhich, 1968 ; Michaels, 1968). It is from this perspective that the city of Cairo is unique : because of extensive recycling almost no destruction of waste is necessary.

III. THE SYSTEM IN CAIRO

For analytical purposes three main types of solid waste may be distinguished : public area wastes, bulk waste, and domestic waste. In Cairo each of these kinds of wastes are treated separately.

Municipal waste collection operations are directed only towards the public areas of the city — the streets, alleys and parks. This cleaning operation is carried out by regular salaried employees. The rubble and dust collected is loaded onto trucks and dumped while the organic waste from gardens, parks, market places and public rubbish bins, is taken to the city — owned composting factory which produces organic fertiliser. Unless such waste is dumped in public areas, this municipal operation does *not* deal with the wastes produced by the homes of the eight million people of Cairo.

The bulky items which households want to get rid of, such as broken pieces of furniture, piles of unwanted papers and magazines and nasty mattresses, are not as would be supposed thrown away but in fact are sold to local itinerant dealers who wander about the different quarters of Cairo with hand pushed carts. These dealers are called *rubabikya* dealers (a corrupted version of the Italian words for old clothes). Rubabikya has its own market channels, and through a succession of different middlemen and repair craftsmen, the various items which compose rubabikya eventually return again to the consumers market.

The waste that does not pass as rubabikya, generally consisting of that which has little or no direct market value as house hold sweepings, dirty rags or kitchen refuse, cannot remain for long before becoming foul smelling and must be disposed of rather urgently. Like

many of the older crafts in Cairo once dominated by specialist guilds, the collection of such domestic waste is organised by two separate but symbiotically dependent ethnic groups : *Zabaline* and *Wahiya*.

IV. THE ETHNIC GROUPS

The Zabaline are some 40,000 squatters who live in about ten separate rusty shanty towns which satellite the city on its desolate fringes. They collect the refuse from the dwellings of Cairo via the Wahiya : a smaller community of refuse brokers who live in the city itself. The brokers control the rights to the city's domestic refuse and rent them to the Zabaline who earn their living by sorting the waste and breeding pigs. The wahiya are Moslem migrants originally from the Western Desert Oasis of Dakhla (and in particular from only three villages there) ; the Zabaline are Christian migrants originally from the Coptic villages around Assiut in Upper Egypt.

The Wahiya, who live in their own quarters in Cairo, congregate in particular Coffee houses, and maintain their own association (called *Rabtit el Wahiya*) which is registered with the Ministry of Social Affairs, purchase the rights to the refuse from the owners of buildings. When new buildings are constructed individual brokers compete with each other by offering the owners sums of money to be recognised as the legitimate contractors for the hauling of all future refuse.

Commissions of responsibilities obtained in this way range in price from one hundred Egyptian Pounds to several thousands depending on the type of future tenants the building are likely to have — the higher the socio-economic standard, the richer is the content of the waste, and consequently, the more desirable is the building. With the recent expansion of construction in Cairo since the 1973 war, however, there has been a tendency towards minimising the extent of this competitive bidding by brokers pre-arranging territorial allocations among themselves before approaching owners. Nevertheless, such arrangements only reduce the prices required of the brokers which, even so, remain substantial.

In return for this investment, the brokers sell refuse by renting collection rights (measured in terms of cart loads) to the Zabaline, and simultaneously collect a monthly fee from each apartment or dwelling whose waste is removed. In addition, they may choose to sell their brokers' rights to other brokers at a profit. Refuse from a building, as it were, becomes established as the *property* of the broker and remains as such even if the building itself passes on to other owners.

Because it takes some 250 apartments to fill one Zabal's cart with waste (2), brokers maintain rights to more than one building and prefer that the buildings they acquire be within the same neighborhood.

An extreme example of this is the one wahawi who controls most of a certain suburb and rents rights for the routes of twelve carts. His gross income is estimated to be some five hundred Egyptian Pounds : approximately three pounds monthly for each of the twelve carts (3 x 12) plus an estimated fee of fifteen Piasters monthly from each apartment (15 x 300 x 12).

Since such property rights to the garbage from buildings are not likely to be defensible in Cairo's courts of law, disputes among brokers over jurisdictional rights are handled informally within the context of the migrants Oasis Community's social organisation in the city. Conflicts are resolved through such mechanisms as informal councils of arbitration and, in extreme cases, stick fights and patrilineage solidarity. In the event of death, a broker's rights are inherited by his next of kin (Primogeniture being the usual practise), and only when the building is demolished do such rights elapse. A new building on the same site is open again for acquisition by the highest bidder-tradition and the threat of violence keeping non-oasis people at bay.

In contrast to the community of brokers, and because of the nature of their specialisation which requires them to live amidst the 10,000 cubic meters of refuse they collect everyday and the pigs they breed, the Zabaline are despised and forced to live in the more desolate fringes of the city. Whenever the urban sprawl reaches the vicinity of their communities, it is inevitable that their new neighbors have them evicted by the city authorities. In this way the Zabaline have seldom been able to live in the same locations for longer than three or four years. They are forced to squat temporarily in shelters of tin in areas which with few exceptions are not supplied by water, electricity, fire protection or any other essential service (3). City authorities do not seem to realise how essential the Zabaline are.

It is the Zabaline who provide the labour necessary for the systematic removal and processing of Cairo's domestic waste. They earn their living by intensively extracting from the refuse such items as tin, glass, paper, plastic, rags and bones on which hundreds of craft workshops and factories within the city depend as raw material. Approximately 2000 tons of paper is extracted every month to be reprocessed into some 1500 tons of recycled paper and card board ; Cotton and wool rags are reprocessed for upholstery and blankets respectively ; tin is pressed and soldered into vessels, rivets, childrens toys and even spare parts for machinery ; glass and plastic is recycled ; bones are used to make glue, paints, and high grade carbon for sugar refining. The intensity of this sorting operation can be appreciated by the fact that spent dry cell batteries are systematically cracked open for the carbon rods within them and their casings which are melted into Zinc ingots. The organic matter from the waste food in the refuse is fed to the pigs which they breed for the meat and sausage market. What

the pigs don't eat and their droppings is then turned into a compost which is sold for agricultural purposes. All these products return to the city through merchant bulkers and middlemen who have good contacts in the market and who make substantial profits.

The central organization and productive unit within the Zabaline Communities is the patriarchal monogamous nuclear family managing a Zeriba or pig yard with attached dwelling quarters. The women and children care for the pigs and sort the refuse, storing the extracted components within the confines of the Zeriba adjacent to their sleeping quarters. The men and older children drive the donkey carts to the parts of the city where they have rented rights to collect refuse.

The Zeriba's main cash commodity is pigs. The species bred by the Zabaline produce five litters every two years. The litters range in size from 10 to 20 and are sold for meat after eight months when each pig approximately weighs 40 Kilograms. Excluding income from sorting raw materials, and taking into account a 25 % loss rate, it is estimated that the annual gross income of a Zeriba with only ten sows is two thousand Egyptian Pounds (4). The smallest community of Zabaline, Baragil, consists of about 60 Zeribas, the largest community, that of El Mokkatam, consists of some 2000 Zeribas. In total, almost 10 tons of pigs are sold daily by the Zabaline.

V. ZABALINE/WAHIYA RELATIONS AND THE EXPANDING CITY

It is pig breeding, therefore, that daily and reliably forces the Zabal into the city to make his rounds collecting domestic waste. An interruption of this activity of collection threatens the Zabal's productive capital. The Zeriba's economic viability depends upon a constant supply of refuse obtained through the offices of the oasis refuse brokers.

All Zabaline donkey carts are standard in size and require 250 dwelling units to fill. Most Zeribas maintain more than one cart if they have the pigs and most important the labour to absorb the additional waste. To obtain the collection rights necessary to fill a cart, the Zabal must make a lump sum down payment to a broker and then pay a monthly royalty. The amounts payed in this way vary depending on the socio-economic nature of the collection route and the amount of work involved (distances between buildings). The down payment amounts to a few hundred Pounds, the monthly royalty ranges between two and six Egyptian Pounds for each cart.

Once established, such collection rights may be inherited and/or bought and sold by the Zabaline among themselves. Unlike brokers who may sell their rights to each other without the consent of the concerned Zabaline a Zabal may not sell his collection route without the permission of the broker who receives a commission on all such transactions. Because buildings are demolished and new ones are

erected in the vicinity of given routes it is not uncommon for a Zabal, operating only one cart, to deal with more than one broker at the same time.

As the Cairo metropolis expands the extension of the sanitation services provided by the Zabaline is *not* planned for by city authorities. The extension of such services is initiated by the brokers and is carried out organically. When brokers acquire additional buildings, they seek out Zabaline who wish to expand their operations, relying on the people with whom they already have contractual relations. Since there is a very great demand for pork (much more, in fact than would be supposed in a pre-dominantly Moslem country), and labour is the only constraint which prevents Zeriba expansion Zeriba owners seek out partners from among their kin and/or old acquaintances from the village. Occasionally villagers may migrate to Cairo and seek out fellow villagers with established Zeribas in the hope of receiving their patronage. Established Zabals use their connections with the Wahiya and merchant middle men, their technical knowhow, and their resources (cash and animals) to help set up new Zeribas. In return for setting up Zeribas, the established Zabals become partners and maintain interests in the production of such Zeribas.

Over the years, such partnerships become quite involved and complex as the following history suggests :

Some thirty five years ago a certain farmer sold his possessions and left his village to join an acquaintance and become a Zabal at Choubra on the outskirts of Cairo. Through the technical help of this friend, he set up an independent Zeriba with the capital he brought with him. As the city extended itself to Choubra the community the farmer had joined was evicted in 1954. Part of the community settled at Embaba but the costs of moving and re-establishing forced the farmer into a partnership with an established Zabal already at the new location. In 1971 the community was again evicted and moved from Embaba to Baragil. This move did not affect the partnership. Today, aside from owning a tenement building at Embaba, the farmer has interests in his own Zeriba and two others - those of his two married sons. His partner, the older Zabal, has partnerships in thirteen Zeribas and is now trading as a wholesaler.

Just as older Zabals become partners by setting up new Zeribas, new Zabals in turn become partners in further Zeribas. Zeribas breed Zeribas, as it were, and partnerships become entangled. In this way the waste from newly built up areas is absorbed by new migrants (and to a lesser extent descendants of old migrants) running new Zeribas established on partnerships with older Zabals.

This pattern of expansion and selective recruitment of labour on kinship and village lines, together with the relative permanence of the contractual relationships between brokers and Zabals (and their heirs), gives rise to a particular pattern of cross ethnic relationship. The relationship between the Zabaline and Wahiya is focussed on a

lineage and residential basis : given clusters of related, co-resident and economically interdependent Zabaline, are attached by contracts to given clusters of related and co-resident brokers. Such a pattern of relationship is further maintained by the endogamous marriages taking place within each of the ethnic groups, and the manner in which the contractual relations themselves are inherited.

IV. DISCUSSION

The system described is a rather unique solution to the problem of urban waste. It is not only radically different from the publically financed solutions common to modern Western cities and neighboring Arab states, but it is also much more economically and ecologically efficient.

The system provides each of the two ethnic groups involved with a means of livelihood and rapid vertical mobility. The expanding city provides both groups with opportunities of increased wealth : the brokers are ever increasing their territories, and the Zabaline, by setting up partnerships and new Zeribas, are soon able to become merchant bulkers and wholesalers. The wealth accumulated by both groups is invested in real estate either within the city itself or in their places of origin where many retire. Such opportunity is not normally open to other rural/urban migrants.

On this basis, it would seem that for a society with a great deal of unemployment, inefficient bureaucratic organization, and lack of raw materials, such a labour intensive solution to the problem of domestic waste is appropriate. It must be recognized however that the Coptic squatters, who provide all of the labour input to the system, also pay the greatest human costs in terms of the exceptionally high infant mortality rates and the low standards of living which are forced upon them by periodic evictions. Only 40 % of all live born children survive the first year (5). Furthermore, because they are confined to live for temporary periods in only desolate parts of the fringes of the city, no municipal services such as health centers, schools, water or electricity is extended to them. Their homes, of necessity, cannot be anything other than temporary shelters.

These conditions can be alleviated by infusing the morphology of the system into an adequate architectural planning scheme at the urban level. Such planning would foster the current system by giving the squatters permanent rights to appropriate lands and make possible for more permanent dwelling structures and the extension of essential and related services (as veterinary clinics). Such planning could also include the gradual mechanisation of the collecting carts, the attraction and relocation of craft workshops and sister factories to the vicinity of these settlements where raw materials are directly available. Encouraging relocation of this kind would cut costs by reducing transportation expenses and exploitation by middle men.

The alternative to such a strategy of developing the existing system is the direct importation of the modern technologies currently employed in Europe and the United States. This would clearly disrupt an entire social system and arrest the great number of workshops and industries that have become dependent on the recycling of refuse. Widespread unemployment would result among the groups involved. Furthermore, the public sector would have to manage the phenomenal task of domestic waste collection — a task that would prove too difficult and expensive to carry out reliably and efficiently. The municipality is now barely able to cope with the waste from public areas alone given the constraint of budgeting, the apparent difficulties in the recruitment of labour, and absenteeism.

Nevertheless, in an article entitled « At last we admit the importance of science, technology, and foreign expertise for the problem of garbage » ; the Governorate of Cairo is reported by *Al-Ahram* (22-9-1976) to have been recently negotiating the importation of such technologies as incinerators, and factories for the production of building materials out of solid waste, from Austria, West Germany and Belgium.

FOOTNOTES

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- (2) This approximate figure is based on the field observation of three carts in the process of collection. Empty carts were followed until full and the buildings serviced were enumerated. The routes of the carts followed were in upper/middle income areas.
- (3) The importance of fire protection in such communities can be appreciated by the fact that recently two major fires swept the Mokkatam community and destroyed over a third of the settlement and several paper storage facilities.
- (4) This is a very conservative estimate based on the current 24 piasters/Kilo on the hoof whole sale price which the middlemen pay and the lowest litter size of 10. Most pig yards observed had more than 20 pigs.
- (5) This figure was obtained from Dr. Gamal Adly, a physician with six years experience among the Zabaline.

REFERENCES :

- El-Hakim, S. M., and Markoff, J., « Solid Waste Accumulation in Residential Neighborhoods as a Socio-Political Process ». A paper presented to the IX *International Congress of Anthropological and Ethnological Sciences*, Chicago, U.S.A. August 28, 1973. Now forthcoming in Aschenbrenner, J., and Collins, L. (eds.) *The Processes of Urbanism : a Multi-disciplinary Approach*, The Hage : Mouton, 1977.
- Muhich, A. J., Klee, A. J., and Britton, P. W., *Preliminary Data Analysis : 1968 National Survey of Community Solid Waste Practices*, U.S. Department of Health, Education and Welfare, Public Health Service Publication No. 1867, 1968.
- Michaels, A., « What Good Incineration Means, Part I : History », *American City*, 83 (5) : 83-86, May 1968.

RÉSUMÉ

Cet article traite principalement de sujets rarement abordés par les sociologues, mais qui sont bien actuels dans le cadre des problèmes soulevés par l'environnement urbain et l'adoption de stratégies de politique sociale.

Contrairement aux villes d'Europe et d'Amérique du Nord, le Caire n'a pas de système public d'évacuation des ordures. Ainsi, et à peu de frais pour le public, les ordures provenant des habitations des huit millions de Cairotes sont presque entièrement digérées à l'intérieur de la cité elle-même.

Cette communication se propose de montrer comment une telle efficacité écologique et une telle économie peut s'obtenir, par la solidarité parentale, les migrations, et les relations interethniques. Avec la coopération d'une communauté d'immigrants originaires du Désert Occidental, des communautés de squatters transforment systématiquement les objets trouvés dans les ordures en marchandises commercialisables et élèvent des porcs. Un apport régulier de nouveaux immigrants absorbe le volume croissant d'ordures provenant de la cité en expansion et remplace les anciens immigrants à qui leur mobilité verticale aura permis d'intégrer totalement la vie de la cité.

Il s'agit là d'une solution tout à fait unique au problème des ordures ménagères. C'est une solution non seulement radicalement différente des solutions financées par les services publics et qui sont communes aux villes modernes d'Occident et des pays arabes voisins. C'est une solution beaucoup plus efficace au point de vue tant économique qu'écologique. Il semble bien que pour une société où le taux de chômage est si élevé, l'organisation bureaucratique si inefficace et les matières premières rares, ce genre de solution, basée sur l'utilisation intensive de la main-d'œuvre, est tout à fait convenable. Les coûts humains élevés et les mauvaises conditions de vie engendrés par le système peuvent être allégées par la transformation de la morphologie du système à l'aide d'un plan architectural au niveau urbain.

L'alternative à cette stratégie de développement du système actuel consiste à importer directement les technologies modernes actuellement utilisées en Europe et aux Etats-Unis comme le Gouvernorat du Caire a l'intention de le faire. Mais cette solution disloquerait tout un système social et interromperait le travail d'un grand nombre d'ateliers et d'industries qui en sont venues à dépendre du recyclage des ordures. En outre, le secteur public aurait à s'occuper du ramassage des ordures ménagères, tâche dont l'exécution sérieuse et efficace serait trop difficile et trop coûteuse.