

CITY OF INGLEWOOD

ONE-MAN OPERATED COLLECTION VEHICLES

by William F. Farnam & Harry M. Frisby

INTRODUCTION

At the outset, it would seem that one man on a refuse truck instead of two would be an indication that one man is going to do half as much work as two men did, or that one man is going to be prodded to an overwhelming work task in an unsafe environment. Today, our one man picks up equally as much, if not more, refuse as our previous two men did ten years ago. The system is safe. The notable advantage of one man is that the man is able to pace himself appropriately to himself rather than to another man's pace. The equipment is designed to reduce his work effort by having a dual steering wheel and side loading. It is true that if you have a very heavy container, then the lack of the other man could cause problems; so, our rules are, that in the case of an over-weight container the man shall not pick it up, and the foreman is so notified and will later send out a two-man party to pick up the refuse. Already, you have a hang up! At the same time, we notify the occupant with the over-weight container and sell him on our rules, cajole if necessary and threaten occasionally. Surprising, this rarely happens now, since public education and public relations have reduced this to a minimum.

Interesting features have developed with the one-man method. The majority of men do like it. There are rare exceptions to this rule. The accident rate of one man is much less than two-man, this is because two men tend to hurt each other when working side by side. They either do not coordinate in their lifting or manage to get in each others way when working with a complex and potentially dangerous collection vehicle. It is not our interest to over work our men nor do anything that would be adverse to the welfare of our employees. On the contrary, this would be poor thinking on our part because the man is most important.

At the very beginning of the changeover to the one-man operation, there was great community controversy as to the advisability of it. It appeared to many as an absurdity, sheer folly, an imperious scheme to reduce costs at the expense of men. There were months of unrelieved irritation; a time that ran the gamut of what is known in pedageese as "A Spectrum of Experience." We suffered from the battered department head syndrome. A time of self-doubt.

One-man refuse collection is not a new thing. Private contractors have been doing it for years. The only thing new about it was that the City was one of the first governmental agencies that we knew of to institute one-man operation using City employees. Is this not apologetic? Citizens often justifiably assert that municipal work is a place for the searcher of security, mediocrity rather than honest economic determinism. This is rapidly changing for the good.

HISTORY

The story of one-man operated collection vehicles covers a ten-year period, commencing on January 1, 1960. The City of Inglewood collected its residential refuse with two City employees assigned to each of its conventional

rear-end loadpackers. At that time, the City's population was 66,600 in an eight-square mile area, with 25,330 dwelling units; collection was once a week with no limit as to amount. Curbside and alley collection, with an occasional on-site collection for apartment houses.

Our service was good and was deemed to be a slick operation, but we had a murderous haul distance of 31 miles round trip to the landfill site. Several years earlier we had purchased a four and one-half acre site with the idea of constructing a transfer station because of that haul distance. The transfer station costs were figured at \$3.25 per ton, including the final disposal cost of \$1.00 per ton.

Because of this additional cost, we asked ourselves could we better improve our present collection system to avoid adding the transfer operation. We had watched the operations of several one-man private contractors. Larger collection vehicles were being manufactured. A thirty-five cubic yard truck with an alternative right-hand drive and sideloading was available and appeared to have the inherent features for one man operating it. Instead of two men traveling to the landfill site in our twenty cubic yard vehicles twice a day, one man could go once a day in a thirty-five yarder. There was no question. It screams to be done. But there were questions. "Is it too much for one man?" "What about safety?"

Experiment then. Two good men were selected to operate two conventional trucks alone. We measured work and determined attitudes of these men. Manhours per ton were reduced appreciably, even with the wrong equipment. But, as important, the men selected preferred what they were doing over the two-man system, or did they? Were they just trying to please and tell us what we wanted to hear? Other men asked to try it. Our entire sanitation division became a part of organizing the one-man operated system. They had youth's tunnel vision that saw only victories and success ahead. It was kind of a pride. A desire to become a swinging outfit in an occupation generally regarded as degrading and unrewarding. This collegial effort in a kind of democratic framework proved to be the greatest factor for success.

By the end of 1963, we had converted our entire fleet to one man, with the exception of one "on-property crew" of two men; sixteen trucks total.

COMPARISON

From our beginning in 1960, we have kept data commencing with the two-man operation, the transition into a full one-man operation by 1963, and up to January 1, 1971. Charting of data is at the end of this report.

By extracting from the data, comparisons of January 1, 1971, looking back to January 1, 1960, can be made.

	<u>1/1/60</u>	<u>1/1/71</u>	<u>% Increase or Decrease</u>
Population	66,598	95,000	+42.6%
Dwelling Units	25,330	38,031	+50.1%
Annual Tons of Refuse	24,265	37,531	+54.7%
Total Truck Loads	5,855	4,335	-26.0%
(or trips to landfill site)			
Annual Manhours	52,167	36,534	-30.0%
Manhours per Ton	2.19	.97	-55.7%

In other words, during a ten-year period the City's population increased over 42% and the tons of refuse collected increased over 50%. In spite of this increase, the total truck loads and, consequently, the number of trips to the landfill site, decreased by 26% and the annual manhours decreased by 30%. But more significantly, the manhours per ton decreased by over 55%.

The tons per load increased from 4.14 tons to 8.65 tons. An increase over 100%. Incidentally, our recent figures for this current year indicate that the tons per load are 9.25. During the summer months, the average is 10 to 10.5 tons per load and it is not unusual to have average days of over 11 tons per load.

The typical average daily collection task of each man is here representational:

- (1) 902 containers
- (2) 240 boxes and bags
- (3) 65 bundles
- (4) 1 chair, 2 hot water heaters and a baby stroller
- (5) 250 stops
- (6) 3 collection miles
- (7) 31 miles round trip to landfill site, 1½ hours of travel time
- (8) 9.25 tons

So, each stop has an average of 3.6 standard containers of 30 to 40 gallons each; a box full of debris; every fourth stop a bundle of papers or yard trimmings; inevitably, during the day, some discarded furniture and appliances. We maintain our unlimited quantity of collection and will pick up anything within reason; almost anybody's reason.

DATA

The charts at the end of this report graphically present the data measured for each year since 1960.

- CHART A - AVERAGE TONS OF REFUSE PER MONTH
- CHART B - AVERAGE LOADS OF REFUSE PER MONTH
- CHART C - AVERAGE MANHOURS PER MONTH
- CHART D - AVERAGE MANHOURS PER TON PER YEAR

The first four years show the ever-increasing population and dwelling units during which time the transition was made from two men to one man. There was a substantial jump in population in 1960 because of sizable annexation.

The one-man transition was slow because of the gradual acquisition of sideloading thirty-five cubic yard trucks and partly employee attrition. You will note that although the number of loads increased during the first three years, they dramatically plunged beginning in 1963. Then, when in full swing, manhours fell and in Chart D it is seen that manhours per ton leveled to around 1.16. This last year it was .97 manhours per ton; this is because tonnage has increased, but without any increase in manpower. Also, our compactor trucks are becoming more efficient in their ability to compact.

HUMAN FACTORS

Of course, there is no one factor which makes a one-man system successful. It is an agglomeration of many features. I list some of these factors without weighing their qualitative importance.

(1) No Old Men. Average age of men is 27; as young as 19, 1 man is 45. Rigid physicals are given, including X-Rays. Medical exams cost fifty dollars and more. Many fail.

(2) Length of Service - Short. Refuse collection is not a career. Average length of service, exclusive of supervisory personnel, is three years. We hire only high school graduates who want to train for jobs requiring technical skills so that some day they can serve elsewhere. It is like serving your country But no mercenaries, just short-term draftees. Their I.Q.'s are remarkably high. Our turnover is high because we want it that way. Most of our men go to other City positions rather than leaving for outside jobs. This, of course, keeps our average age down. The paradox, though, is that some men genuinely prefer refuse collection and have transferred back to it, but we take a dim view of this and limit the time.

Five men have become mechanics; three men, license inspectors; one, the head of the license division; eight, heavy equipment operators; numerous men in the street division; building maintenance men; firemen; policemen; others have gone to college; and all of our supervisory personnel are originally from the sanitation division.

(3) High Salaries. There are few cities in California who pay their sanitation men higher than Inglewood. Our salaries are nonetheless tops. On a five-step salary plan, our present range is \$719 to \$877 per month. Overtime is time and a half. Salaries in sanitation are higher than the starting positions in street and park divisions. Our general municipal philosophy has been "better to have four outstanding, well-paid men, than five mediocre, moderately salaried men." There is economy and greater production within this framework.

(4) Training. Each employee must obtain a Class II Chauffeur's License. Each employee is given an annual psycho-physical examination which tests depth perception, side vision, color vision, etc. This test is made a permanent part of the employee's personnel record.

When assigned to the City sanitation division, each new man spends five days in the field with a trainer, i.e., a senior man from the division who instructs the new man in proper procedures and use of the equipment involved.

There is also training (annual) on fire extinguishers and fire fighting with Fire Department instructors. First aid training is also given to all employees.

A retraining program is provided. Each man, if he desires, may take an aptitude test to ascertain what skills he may have. The City will then pay for reasonable tuition and training. The rationale is that young men are able to move more trash with less injuries. Thus, the City will assist in retraining and helping the employees obtain a new career.

(5) Safety. This is the pivotal question. One of the major benefits received was in safety. Accidents, both vehicular and personal injury, have been reduced by over 65%, compared to our two-man operation. Far fewer back injuries than before. One man must, by necessity, learn to lift properly and we stress, once more, the salubrious benefit of one man being able to set his pace, varying though it may be. On reviewing our old records of two men, we found that a high percentage of injuries were due to uncoordinated, mistimed, miscued, unpaced man to man motions rather than man to machine. The State of California Workmen's

Compensation Board has produced an educational motion picture based on our one-man operation and its safety. Some time ago, I received a letter from an executive of Workmen's Compensation commending us for not having any kind of an accident for over six months. He said he was astonished.

THE FUTURE

In Southern California we have a sweet miasmic climate, which produces an hallucinogenic creativity. How can we improve the one-man? No, we don't mean a "no-man system." But our goal has been to collect refuse so that a man does not have to pick it up. We want a truly automated system where an operator engages levers or, perhaps, pushes buttons and gets it into the truck without lifting or even touching the refuse. Recently, our City was awarded a grant by the U. S. Public Health Service to make a bag study in association with our one-man operation. This study has now been completed and a report has been forwarded to the U. S. Public Health Service. Because the bag is a light-weight uniform container, we may be able to develop methodology and equipment to accomplish this. We don't have a complete answer yet, but we are going to worry about it.

SUMMARY

Maxwell J. Wilcomb, Jr., Chief of Solid Waste Training Operations, has made some marvelous observations about Solid Waste. He believes it to be an emotional issue with psychological implications, and he has defined a new science called "Garbo Psychology." Dr. Wilcomb states that (1) waste is negative, (2) waste is boring, (3) waste is sinful, (4) waste is degrading. Thus, in effect, the public would rather ignore the whole thing and perhaps it will go away. Dr. Wilcomb's assertions are not entirely tongue-in-cheek. We have known that Solid Waste is the "original sin" or at best innate depravity. We regard the Solid Waste aspect of our operation to be the most challenging and difficult of all public works operations. Every phase of municipal management is, in strength, intimately associated with it. Equipment, maintenance, personnel, the public, rules, enforcement, land acquisition, training, sanitation, scheduling, public information, noise, non-interrupted service, billing, collection, traffic, safety -- even the weather. Someday, we wistfully suppose, unionism.

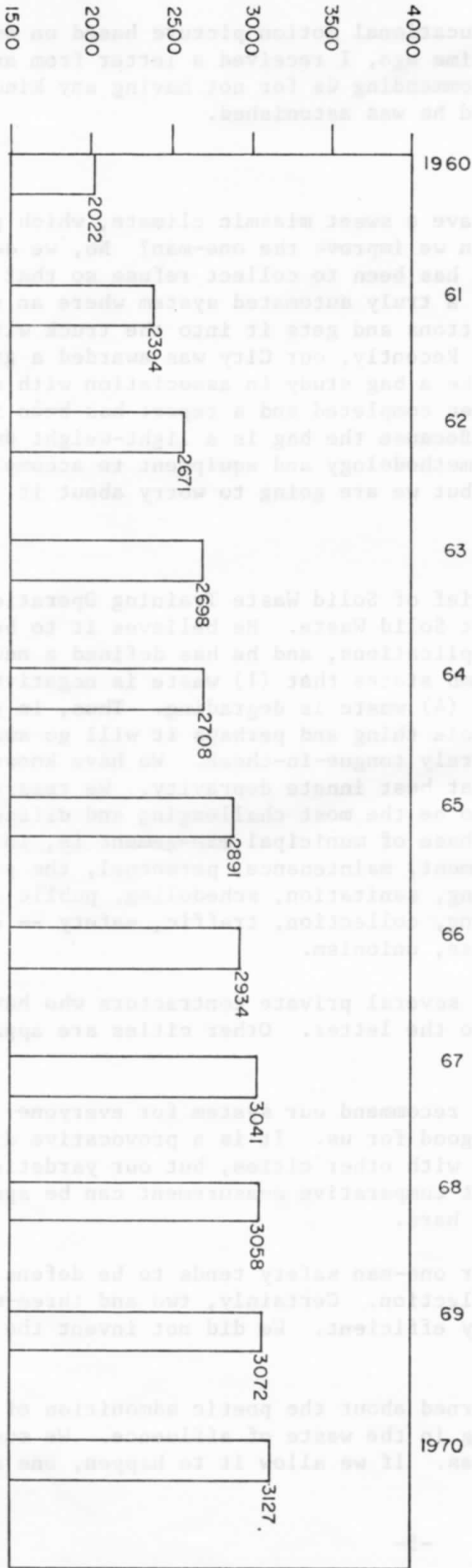
We can name many cities and several private contractors who have outrageously copied our one-man system to the letter. Other cities are appalled by it.

We cannot say that we would recommend our system for everyone. There is compelling evidence that it has been good for us. It is a provocative diversion and loads of fun to compare your city with other cities, but our yardsticks, goals, characteristics, are so different that comparative measurement can be specious and patently in error. So, don't try too hard.

Certainly, our arguments for one-man safety tends to be defensive and is not an attack on two-man or three-man collection. Certainly, two and three-man crews are frequently symbiotic, safe and smartly efficient. We did not invent the one-man operation, but we do endorse it.

Like you, we are also concerned about the poetic admonition of our being in the Period of Pollution, smothering in the waste of affluence. We suspect some answers lie in innovating and new ideas. If we allow it to happen, one can get as ingrown as a toenail.

TONS OF REFUSE



"A"

AVERAGE TONS OF REFUSE PER MONTH

THE FUTURE

In Southern California we have an hallucinogenic creativity. How can we improve the one-way, we mean a "no-man system." But our goal has been to collect refuse so that it does not have to pick it up. We want to fully automated system where an operator engages levers or, perhaps, pusher buttons and gets it into a truck without lifting or even touching the refuse. Recently, our City awarded a grant by the U. S. Public Health Service to make a bag study in association with our own operation. This study has now been completed and a report is being prepared to the U. S. Public Health Service. We may be able to develop technology and what we are going to do about it. We don't have a complete answer yet, but we are going to worry about it.

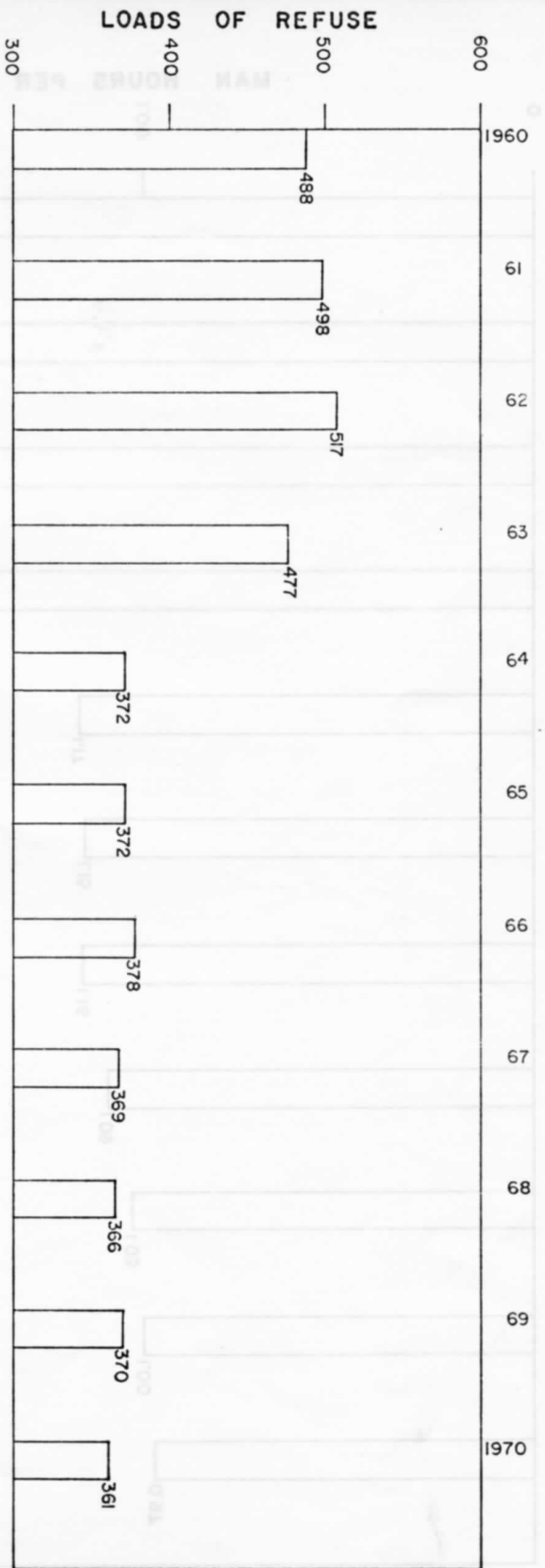
SUMMARY

Hawaii J. Wilson, Chief of Solid Waste Planning Operations, has made some interesting observations about Solid Waste. He has defined a new volume entitled "Garbage Psychology." Dr. Wilson's theory is that (1) waste is garbage, (2) waste is boring, (3) waste is a waste, and (4) waste is a waste. He has also noted that the public would rather ignore waste than deal with it. We have known that for a long time. The "wasteful" or "wasteful" aspect of our operation is all public works operation. It is important to note that the equipment, maintenance, and collection are all done by the public. We can save many dollars and several private contractors who have been largely copied out one-man systems to the future. Other cities are applying the same.

We cannot say that we could recommend our system for everyone. There is competing evidence that it has been good for us. It is a provocative system and tends of us to compare your city with other cities, but our yardstick, goals, characteristics, are all different. So, don't try too hard. Certainly, our arguments for one-man safety tends to be defensive and is not an attack on two-man or three-man collection. Certainly, but and safety and cost are frequently synthetic, safe and nearly identical. It did not invent the one-man operation, but we do endorse it. Like you, we are also concerned about the health situation of our being in the period of pollution, weathering, and new ideas. It we also it to happen, we can get us logdown as a result.

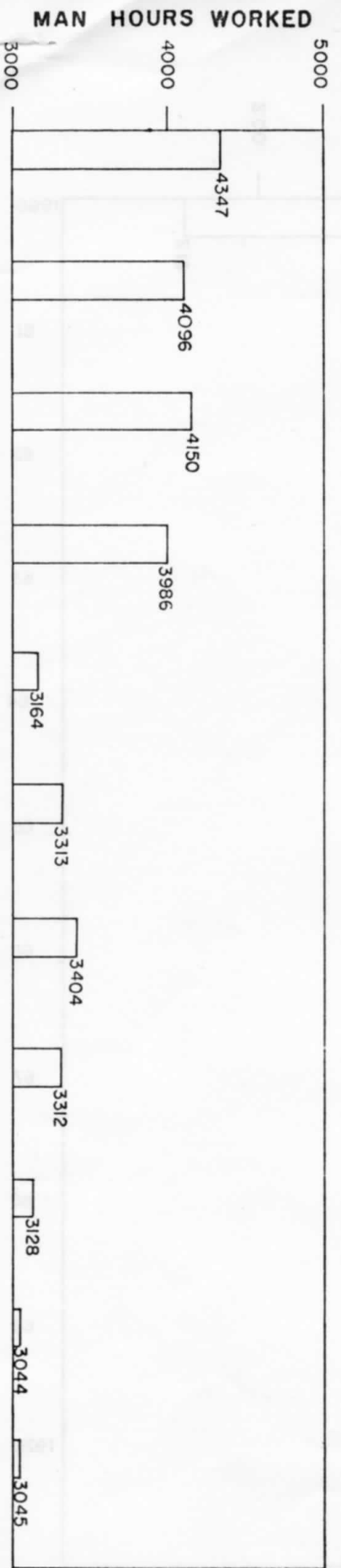
"B"

AVERAGE LOADS OF REFUSE PER MONTH



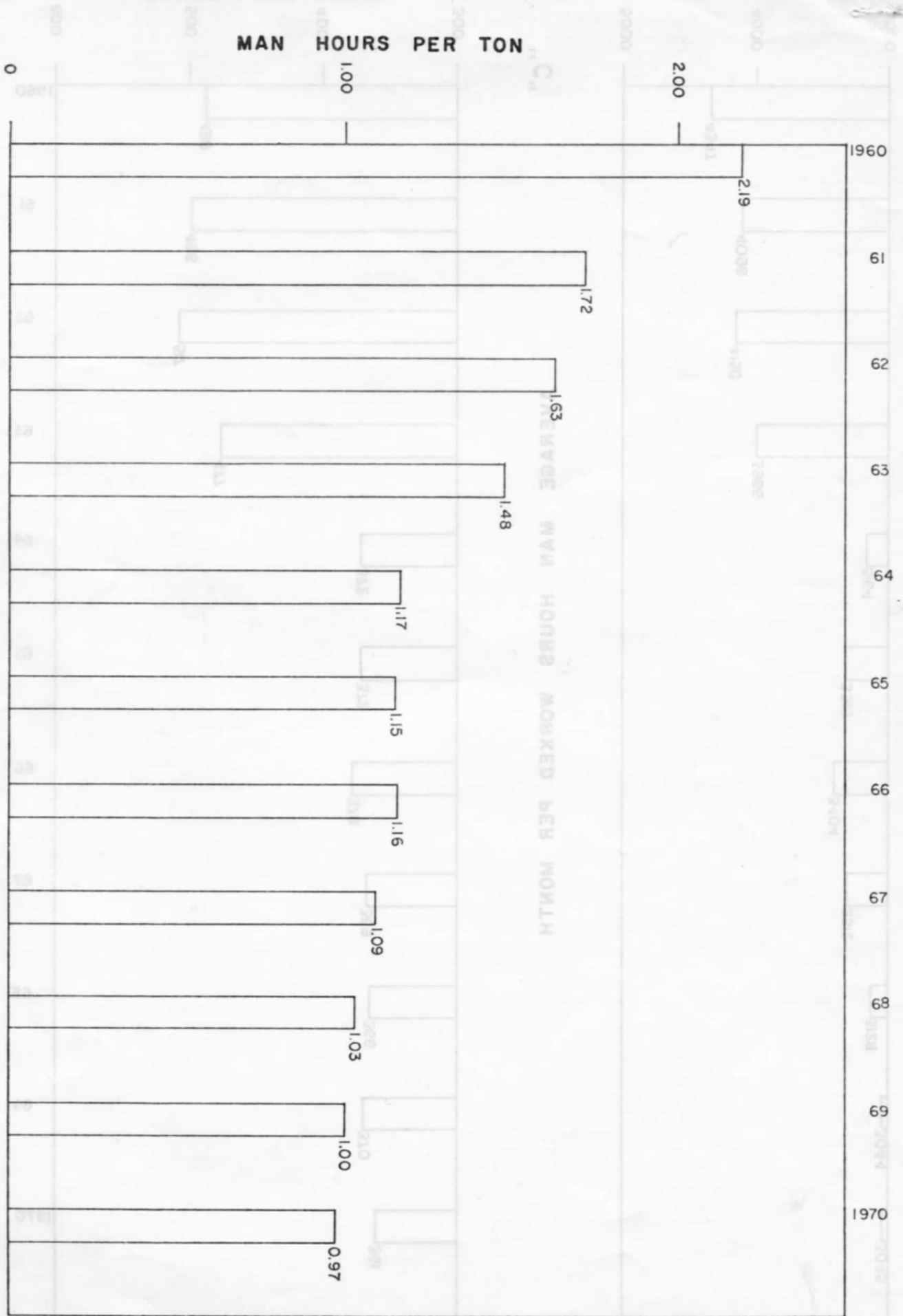
"C"

AVERAGE MAN HOURS WORKED PER MONTH



AVERAGE LOADS OF REFUSE PER MONTH

"B"



"D"

MAN HOURS PER TON PER YEAR