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The Fiji Fertility Survey: A Critical Commentary

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The World Fertility Survey is an international research programme whose purpose is to assess the current state of human fertility throughout the world. This is being done principally through promoting and supporting nationally representative, internationally comparable, and scientifically designed and conducted sample surveys of fertility behaviour in as many countries as possible.

The WFS is being undertaken, with the collaboration of the United Nations, by the International Statistical Institute in cooperation with the International Union for the Scientific Study of Population. Financial support is provided principally by the United Nations Fund for Population Activities and the United States Agency for International Development.

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The Fiji Fertility Survey:

A Critical Commentary on Administration and Methodology

This report was prepared by the staff of
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Foreword

The primary objects of the World Fertility Survey are to assess human fertility and to explore the reason for variations within and between the participant countries. The basic information is provided from carefully planned social surveys by questionnaires answered, in the main, by women of child-bearing age.

The scope of this project and the effort put into it by demographers and statisticians throughout the world will result in an enormous amount of practical experience which should be of great value to social surveyors in many related fields. We have therefore made a point of recording this experience in some detail, both to help in correcting our own mistakes and to help others to avoid them. It is not common, in reports of field surveys, to dwell on the difficulties which were encountered, especially where they indicate that something fell short of perfection. We felt that the lessons we learn should be made generally available.

The following report on the Fiji survey embodies an exposition of the problems which were encountered and the methods adopted to resolve them. As the Fijian survey was the first to be completed and was, in several ways, a pioneer study, perhaps we met many problems which will be avoided for the future. We are very grateful to the authors for the care which they have taken to discuss them and we are sure that many research workers throughout the world will share this gratitude for what we feel is a major contribution to survey methodology. We hope to arrange for similar reports on the other country surveys which are in progress or in prospect.

Maurice Kendall,
Project Director.

Introduction

The Fiji Fertility Survey (FFS) was a pilot exercise for the World Fertility Survey (WFS). Accordingly, Fiji staff were asked to prepare a special report describing the conduct of the survey in greater detail than in the country report. Particular attention was to be paid to the problems encountered, errors committed and the lessons learnt. In this way, it was hoped that the document would be useful for subsequent WFS operations.

The report was drafted by the four local technical staff in the latter half of 1974 and finalized in January and February 1975, while awaiting the computer tabulations from London. Though the ultimate responsibility for the views expressed lay with Fiji staff, the report is essentially a joint exercise between Fiji and the WFS. Throughout the survey there has been considerable interchange of ideas on both written and verbal levels, and contributions by WFS staff have been freely incorporated into the report.

The practical problems of conducting a survey are often hidden beneath the bland façade of the report. In this instance, we have deliberately removed the façade to reveal the substance, both in its savoury and unsavoury aspects. In many ways the report has been an exercise in self-criticism, and, in places, may read as a catalogue of errors. This is the result of our deliberate emphasis on problems, for there is little merit in dwelling at length on those facets of the survey which ran smoothly.

However, any impression that the survey was generally of poor quality would be mistaken. On the contrary, we consider that it was designed and conducted as well, if not better, than most large sample surveys in similar situations. This claim is no mean one, bearing in mind the special circumstances. Not only was the Fiji survey the first of the WFS series, and therefore inevitably would suffer from inadequate preparation, but the time-table had to be extremely tight to allow the lessons learnt in Fiji to be incorporated into the design of surveys in other countries.

In the report, we do not claim to have discussed all aspects of the survey in equal detail. Instead, we have tried to concentrate on those problems which have relevance to other surveys rather than on those stemming from a unique set of circumstances. Inevitably there will be some overlap in subject matter with the initial chapters of the main FFS

report. Repetition was necessary for clarity of exposition and, as the report will be published prior to the main FFS report, we could not assume that the reader would be familiar with the general methodology.

Discussion is divided into eight chapters which correspond to the major components of the survey. Only one topic, computer editing and analysis, has been omitted because this phase is not yet complete. Subsidiary operations, the post-enumeration survey and the comparison of reported contraceptive use against medical records, have also been omitted because these topics are of limited interest to other countries.

It is not our aim in this report to draw up a set of recommendations for future WFS activities, though we hope that it will be useful in this respect. Where particular suggestions are made or implied, it cannot be assumed that they bear the official stamp of WFS approval.

Readers are requested to note that the term 'enumerators' has been used throughout the report when referring to the staff who canvassed the FFS questionnaire and talked to the respondents. The term 'interviewers' as suggested by WFS for its project in the other countries would have been more appropriate. However, our description was so widely used in documents and correspondence that it was considered inadvisable to change it.

I Administration

1. Introduction

Two members of the technical staff from the World Fertility Survey operational headquarters in London, Dr. C. Scott and Dr. J.G.C. Blacker, visited Fiji in July 1973 and, in consultation with local officers of the Bureau of Statistics and Medical Department, designed the methodology of the project and estimated the cost structure. They were followed in August by Mr. J.W. Lehman of ISI, Mr. R.A. Henwick of ISI/WFS and Mr. G.P. Gold from the United States Agency for International Development (U.S. AID). Contract negotiations were conducted and an Agreement was drawn up and signed between the Government of Fiji and the ISI covering the conduct, timing and finance of the survey and use of survey results.

The Agreement provided that the entire finance of the FFS would be provided by U.S. AID under the auspices of the ISI. The WFS also undertook to provide technical expertise as the need arose. As its contribution, the Government of Fiji, through its Bureau of Statistics, would provide the Survey Director, other technical staff and office accommodation.

2. Timing

In the Agreement between the ISI and the Government of Fiji, the time-span envisaged for the survey was 13 August 1973 to 30 June 1974, but this period was later extended by a year. This timing was unfortunate in several respects. Normally in Fiji, no major exercise of such a nature is undertaken during the wet season from December to May because communication and travel become difficult during these months. However, in view of the pilot nature of the Fiji project and the desire of the WFS to learn as much from the Fiji survey as possible prior to the implementation of surveys in other countries, the FFS had to be mounted during the rainy months. This had its effect.

Although Fiji escaped any major hurricane during the survey period, it nevertheless had the wettest March in history with widespread flooding in most areas; and March 1974 was the principal month of field operation. As a result, field work had to be stretched over a longer period, with a consequential increase in expenditure.

Even before the main field work began, the world fuel crisis hung ominously over the project. As Fiji imports every drop of petroleum it uses, restrictions on use of petrol were imposed by the Government. These restrictions affected fuel for cars and motor-driven

boats that are generally used for travel in coastal waters and rivers. The field and the supervising staff, in particular, suffered. However, some reprieve came when, at the appeal of the National Director, the restrictions were less severely applied to the car provided for FFS work, but there was no escape from the rising fuel prices which added to the costs. The world-wide inflationary spiral which started in 1973 had its effect in Fiji too. For instance, the Consumer Prices Index, compiled by the Bureau of Statistics, rose from 136.6 (July 1968 = 100) in July 1973 to 158.8 in June 1974. Such a rapidly rising price structure necessitated two revisions of salaries and wages within the survey period.

3. Time-table

The original time-table devised during the visit of Drs. Scott and Blacker is shown below.

August/September 1973:	Design of sample and preparation of the first draft of questionnaire.
October 1973:	Pre-test of questionnaire. Mapping of sample areas.
November/December 1973:	Adaptation and printing of final version of questionnaire. Selection of listing enumerators.
December 1973:	Household listing in sample areas. Recruitment of supervisors and enumerators.
January 1974:	Selection of sample households.
January/February 1974:	Training of supervisors and enumerators.
February/April 1974:	Field enumeration.
April/June 1974:	Editing, coding and transcription of questionnaires.
May 1974:	Post enumeration survey.
June 1974:	Validation checks on contraceptive use with Medical Department records.
July 1974 onwards:	Data processing in London. Preparation of reports.

The time-table proved to be extremely tight, though even this represented a delay on what local staff had initially hoped for. Among the consequences were the inability to field test the radically revised questionnaire; insufficient time to check household listing; incompletion of the second stage sampling and *Manual of Instructions* before the start of supervisor training resulting in great pressure on technical staff; and the necessity to draft and finalize coding plans during the main field work, thus distracting technical staff from field supervision. However, despite unforeseen climatic and other difficulties, we were only a few weeks behind the original time-table by the end of coding.

In retrospect, it would have been better to have planned greater flexibility in the timing of interviewer training and main field work so that the preliminary stages of the survey, particularly pre-testing of the questionnaire and household listing, might be satisfactorily completed before precise dates of training and field work were fixed. In future WFS operations, the methodology will presumably be more developed and thus the importance of flexibility diminished. A second major defect of the time-table was that it allowed only two full working weeks between completion of listing and start of training in which to draw the second stage sample. This proved inadequate for a job of such clerical magnitude, especially as none of the technical staff could be spared from training to supervise it.

4. Legal framework

It was decided from the outset that the FFS should be conducted under the provisions of Fiji's Statistics Act. This Act empowers the Government Statistician to collect information from individuals and, at the same time, lays down penalties for disclosure of confidential answers. All field staff received a copy of the relevant clauses of the Act (See Appendix 7) during training and swore an Oath of Secrecy (See Appendix 7).

Although the use of the legal powers of the Act to enforce cooperation was not practicable, it did help to give confidence to the field staff and emphasized the need for confidentiality. Only on a very few occasions was a hint of legal powers given to counteract resistance or ensure compliance from members of the public. No complaints have been received of the involvement of any staff in disclosure of confidential answers to other persons.

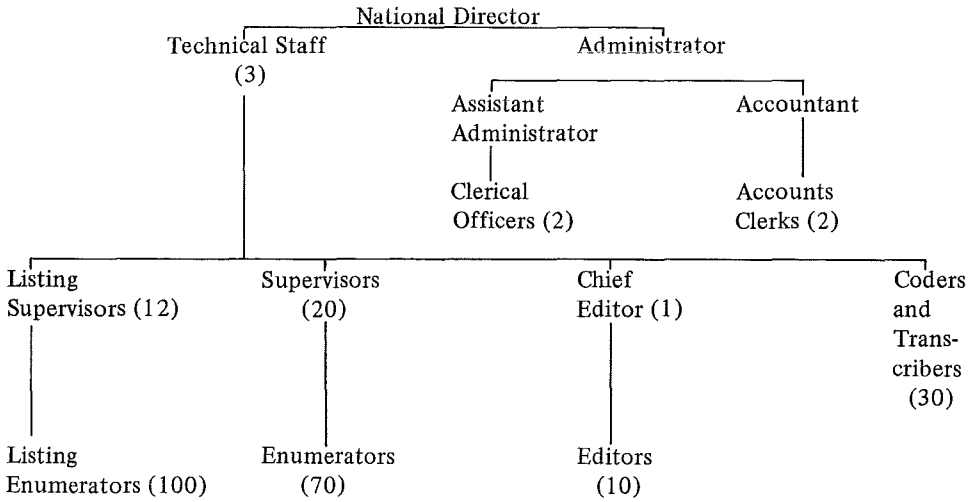
5. Co-ordinating committee

An *ad hoc* committee composed of representatives of the Bureau of Statistics, Central Planning Office, Medical Department, Family Planning Association, Fijian Affairs Board and the Social Welfare Department, was organized under the chairmanship of the Government Statistician. The purpose of this committee was to ensure that the needs and particular interests of all departments were considered in the design of the survey. It met three times in 1973, prior to the onset of the main field work.

The committee contributed to the success of the survey in ensuring cooperation of Government departments and the general public by sending circulars and newsletters before the main field work. However, all technical matters were tackled by survey staff without the help of the committee.

6. Technical staff

The organizational chart of survey personnel is shown below:



The National Director was also the Government Statistician, a man of wide administrative and technical experience. Of the other 3 local technical staff, two were civil servants: one was a Statistician and the other an Assistant Statistician from the Bureau of Statistics. Both had studied demography for one year in India. The last member was on a two-year contract with the Medical Department under the U.K. Technical Assistance Scheme to assist in evaluation of the family planning programme.

Only one local technical officer worked full time on the survey from start to finish. The National Director was able to delegate many of his normal responsibilities associated with his position as Government Statistician but, nevertheless, had to spend about 20 per cent of his time on matters relating to the Bureau. The Statistician and U.K. Technical Assistance Officer also had other commitments but managed to devote between 80–90 per cent of their time to the survey.

It is obviously preferable to have full-time staff in charge of a survey, but no serious adverse effect of staffing arrangements in Fiji were noted, though pressure of work on the National Director was sometimes excessive. In a small country like Fiji, it is probably unrealistic for several senior men to be entirely seconded from their normal duties for a period of 9–12 months.

Technical officers worked as a team during training of enumerators and the main field work. At other times some specialization of labour took place. For instance, one individual took prime responsibility for mapping and drawing of the second stage sample, another for drafting of manuals, another for supervision of coding and transcription, and so on.

As the FFS was a pilot study, close technical liaison was maintained with WFS headquarters in London throughout. Some aspects of the survey – notably the sample design, design of the coding manual and coding sheets, punching and computer programming – were largely or entirely the work of WFS staff. In addition, one WFS staff member assisted for two weeks with analysis of the pre-test and design of the final questionnaire; two staff members assisted with enumerator and supervisor training for 6 weeks and another with supervision of the main field work for 10 weeks. These inputs were timed to arrive at the most important stages of the survey when pressure of work was greatest. Short visits to discuss coding and analysis also took place. Their contributions to the survey were indispensable.

7. Administrative and accounting staff

An administrative officer, one assistant administrative officer and one accountant were appointed at the early stages of the survey and stayed until the end of August 1974 to help the National Director with administration. One of them was later required to continue till the end of December 1974 in order to finalize all administrative and accounting details.

As we were not able to second these officers from the existing staff of the Bureau, we had to recruit them from outside. All three recruits were former civil servants who had just retired. The two administrative officers continued to work throughout but, unfortunately, the accountant left without giving any notice and we were lucky to find another replacement within a short space of time.

One of the first tasks of the administrators was to recruit clerical staff to help them and the accountant. One personal assistant, one typist and four clerical officers were recruited and worked throughout except for some changes towards the end of the survey. The experience of the two officers enabled them to give an on-the-job training to these new clerical recruits.

Details of the duties of these officers were as follows:

a) ADMINISTRATIVE TEAM

The first major job performed by the administrative officers concerned listing of households. They toured the country, visiting secondary schools and interviewing school teachers and senior boys, to recruit the required number of field staff for the listing enumeration in December 1973.

The one-and-a-half-day training for listers took place simultaneously at six centres, with administrators taking responsibility, along with the 4 technical officers, for one centre each. At the end of listing, they also assisted technical staff by collection of booklets and payment of wages and travelling expenses to listers in their respective centres.

The administrative team was also able to help the technical officer responsible for the selection of the second stage sample. They sorted the household lists before selection and then arranged and typed the selected households onto Sample Household Lists: one for each sample area.

Another major task was the preparation of questionnaires for the Post Enumeration Survey. Instead of printing a new document, the clerical staff deleted redundant questions from original questionnaires and amended a few skip instructions. This arrangement saved printing costs and facilitated coding and punching.

Towards the end of the survey period, the assistant administrative officer headed one of the five teams carrying out the comparison of interview responses with the Medical Department records.

Apart from these semi-technical duties, the team made travelling arrangements in advance for technical officers, as well as field staff, throughout the survey. This included flight and hotel bookings, hire of rental cars and taxis, and boat hire. Arrangement of halls and offices as training rooms were also part of their duties. In addition, they liaised with district administration headquarters and other government departments' staff in all survey areas.

The team were responsible for the production of documents, printing of manuals and distribution of survey documents and stationery. They had to order and maintain survey equipment such as the car, typewriters, electronic calculators, and cassette recorders. They also kept stock of all non-expendable items used during the survey.

Verification of subsistence and mileage claims by technical officers and travel and cost records by field staff was an aspect of their work which consumed much of their time. They had to satisfy themselves that the fares and hire charges were reasonable before they passed them for payment. This was a difficult and demanding task, especially during the main field work. The officers were faced with a dilemma: either to check all claims in detail which needed much time and resulted in delays of payment to field staff, or to accept them without a thorough check in order to speed up reimbursement, thus running the risk of passing inflated or spurious claims. Inevitably a compromise had to be reached. It should be noted that reimbursement of actual travel expenses represents a much heavier administrative work load than a fixed weekly allowance.

Accounts submitted by other departments and commercial firms for services rendered, or goods supplied, were also verified by them before payment.

The assistant administrative officer was purposely selected to be a Fijian because only one of the three technical staff was a Fijian. He therefore assisted in translation of the questionnaire and in supervisor and enumerator training.

We were really fortunate to find two retired civil servants as our administrative officers. Their knowledge and experience, as well as their personal influence, proved indispensable in the recruitment and training of junior office staff, in travel arrangements, in liaison with other government departments' staff and in the overall conduct of the survey.

b) ACCOUNTING TEAM

The main duty of the accounting team was the disbursement of accounts, payments of wages and general book-keeping. This task took the greater portion of their time and, during the main field work, the pressure was so great that they were not able to cope with

other duties. Wage vouchers had to be prepared and cheques posted to field staff and, at the same time, they had to keep track of the weekly travel and cost claims from them. Due to delays in mail services and other unforeseen circumstances, cheques did not always arrive in time. However, in general, the system was satisfactory and, though there were occasional grumbles, no serious adverse effect on the morale of field staff was apparent. Accounts from outside firms and departments were also met satisfactorily without much delay.

Vote and ledger books were further records that needed meticulous maintenance. The team had to account for every cent spent on each head or sub-head of the estimates in order to monitor the balance of survey funds. Reconciliation with banks and the Treasury had to be made as early as possible at the end of each month in order that a monthly statement could be sent to The Hague. However, due to pressure of work during the main field work, they were not able to fulfil this role, and the back-log had to be cleared when the field work was over.

The Government of Fiji requires that all employees contribute 12 cents for every dollar of wages or salary they receive towards the Fiji National Provident Fund. The employer matches this contribution. This involved record keeping for over 100 employees of the survey and monthly remittances to the Fund of the appropriate amounts. This task had to be carried out promptly as failure would have resulted in payment of fines as required by law.

The auditing of accounts by a firm of chartered accountants also involved the accounting section. They had to keep their records up to date to make the task of auditing easier and, at the same time, to answer any question raised on the spot.

Although the team encountered a heavy work-load during most of the survey, they managed to discharge their duties satisfactorily without excessive delays. The efficient running of the accounts section was mostly due to the good work of the accountant. His experience and knowledge of the Government accounting system proved helpful throughout.

8. Assessment of administrative and accounting needs in a survey

It is difficult to generalize from the Fiji experience about administration and accounting capacity needed for a large sample survey, as much depends on local conditions. In Fiji, we had a shortage of technical officers and therefore used administrators in a semi-technical capacity. This arrangement proved very satisfactory but would be unnecessary in countries with more adequate technical resources.

The institutional framework for the survey, the accounting system and the mode of settling travel expenses also determine the quality and number of headquarters' staff required. There are, however, a few suggestions, based on the Fiji experience, that can be offered:

a) there should be from the start a clear demarcation of responsibilities amongst administrative and accounting staff;

b) one senior man should be put in charge of all these staff so that their activities can be co-ordinated and staff reallocated to meet changing needs as the survey progresses;

c) this senior man should be appointed at an early stage so that he is familiar with the basic planning documents, especially the budget and system of financial accounting to ISI. If possible, he should be available at the contract negotiation stage;

d) at least one of the accounts team should be experienced in government accounting procedures;

e) the work-load is at a peak during the main field work; any delay in payment of salaries and travelling costs at this stage can be very harmful. These factors should be anticipated in planning staff requirements.

9. Printing

Printing of questionnaires, manuals and other documents would have been much cheaper if it had been done at the Government Printing Press. However, it was the experience locally that the Government printer was overloaded with printing orders from government departments. He could not meet our orders promptly and, since the time-table for the survey was tight, recourse to commercial printers was necessary.

Printing of all survey documents, except the first report on the survey findings and coding sheets were therefore done by local commercial printers. The following are the lists of documents printed and their numbers:

	DOCUMENTS	NO. PRINTED
a)	Questionnaires	9,700
b)	Manuals of Instruction for Enumerators	300
c)	Coding Manuals	75
d)	Interview Record Sheet	2,150
e)	Detached Household Schedules (For training and spot-checks)	1,000
f)	Poster-size reproductions of Schedule and key pages in Questionnaire	550
g)	Travel and cost records	2,000
h)	Thank-You cards	6,500
i)	Identity cards	500

One problem faced throughout was how to economize and, at the same time, ensure that there were no shortages of documents. As an example: 7,500 questionnaires were ordered

at the first printing. This estimate was based on 5,500 for the main field interview and 2,000 for training and spares. However, due to demand for extra questionnaires from supervisors in the middle of the field work, an extra 2,000 were then ordered to cater for the estimated shortage. It would seem that we underestimated the number required for training and had unrealistic notions about the efficiency of field distribution. At the end of the field work, 700 questionnaires were returned unused from the field, a small price to pay compared to the disastrous consequences of depletion of stocks before the end of interviewing. Of these questionnaires, 500 were then used for the Post Enumeration Survey. An appreciable number were also requested by researchers and interested organizations from neighbouring countries.

10. Office accommodation

The entire operation of the survey was directed from the Bureau's premises. One office was converted into the survey operations' room with large scale maps on the walls showing the sample areas. This room was adjacent to the National Director's office thus facilitating easy reference and accessibility during meetings, discussions and planning of field operations. All stocks of supplies, including questionnaires, forms, manuals and stationery, were maintained at headquarters.

The training sessions for the supervisors were conducted in the two lecture halls of the Government Training Centre which was adjacent to the Bureau of Statistics. Enumerators from the Central and Eastern Divisions were also trained in the same premises. In the Western Division enumerators' training sessions were held in a church hall at Lautoka. Training of the enumerators from the Northern Division was conducted in the Labasa Town Council Chambers. Facilities were adequate in Suva and Labasa but somewhat meagre in Lautoka.

During the main field work, the Bureau was the focal point in the Central/Eastern Divisions for all meetings, distribution of supplies and payments of salary checks. Supervisors came in for regular consultations and reporting of progress. In the Western Division the Commissioner made available a fairly large room which was converted into a regional office. Some supplies were maintained there and a telephone was also installed. Similar office space was not available in the Northern Division. However, the divisional operations' room was used as meeting point. Supplies for this Division were maintained at the homes of supervisors.

Editing was carried out in the rooms of the Training Centre. These rooms were later used for storage of questionnaires during checking and reconciliation of computer queries. The questionnaires will eventually be transferred to the archives for permanent storage.

For coding and transcription, which was done by some supervisors and enumerators after the end of their field work, additional office space became a necessity. The only available room of suitable size was the Masonic Hall, a mile-and-a-half away, which was hired at nominal cost.

To find sufficient office space in a survey of this size is difficult, and administrative and accounting personnel had to share office space with Bureau of Statistics staff. This

arrangement was not very satisfactory but it saved much expense. We were really fortunate to be given the use of the Government Training Centre, which is adjacent to the Bureau, for training and editing purposes. The generosity of other government departments, school committees, churches and municipal authorities was extremely useful and much appreciated. Only on one occasion had a hall to be hired, for the coding operation.

11. Transport and communication

Telephone services are well established in Fiji. Although mail is also regular, it was found during the survey that a better co-ordination could be achieved by telephone. All supervisors were instructed to contact the Bureau regularly to report on the progress and receive additional instructions. Moreover, technical staff from the headquarters visited each team in the field frequently when additional supplies were issued and completed questionnaires collected.

As public transport is reasonably well developed in Fiji and the land-area is small, the expense of providing a vehicle for each interviewing team was unjustifiable. However, a station-wagon was made available for the whole duration of the survey and a car for the use of technical staff in the Western Division was rented for the duration of the main interviewing phase. Further travel details are given in Chapter VI.

For remoter places, particularly in Northern and Eastern Divisions, boats with outboard engines and launches had to be hired on an *ad hoc* basis. This was similarly done in Viti Levu where travel by river was involved. Boat hire proved very expensive. In one extreme case, two remote islands containing nine sample households had to be abandoned because regular boat was not available and a figure of $F 250 was quoted for the special hire.

12. Insurance of Employees

All employees engaged in the field were insured against injuries and accidents under the Workmen's Compensation Proposal at a cost of $F 269.50 as premium. Only two minor claims amounting to $F 50.00 were processed: one enumerator injured her back when she fell down on a concrete footpath on a rainy day when chased by a dog, and the other twisted her ankle on a slippery road in a rural area.

The policy, apart from meeting these two claims, provided us cover for any major disaster that might have happened to field staff during the survey.

II Finance

A tentative budget for the FFS was first attempted during the visit of Drs. Scott and Blacker and included in their report. Separate estimates were prepared for each phase of the activity. These estimates were revised in the light of discussions with the contracting officers and other stipulations required by the donor agency. The main items of the proposed budget are indicated in the table below.

The remunerations of headquarters' staff were determined by the rates currently prevalent for equivalent work in the civil service plus a small consideration for the temporary nature of the work. For the field staff, an acceptable weekly rate was multiplied by the number to be employed of each category and by the estimated period of their employment.

Travel and subsistence costs were also determined on a similar basis, namely the average per employee per week times their number and period of employment. However, for obvious reasons these costs were much more difficult to estimate.

Prices of equipment were compiled at the rates normally paid by Government Departments. Printing, advertising and telecommunication costs were determined on the basis of the experience of the Bureau of Statistics.

A contingency fund of $F 10,000 was first created in the provisional estimates, but this was later dropped during the discussions with contracting officers. It is our experience that a contingency item is necessary, as during the operations of the survey some disbursements were made which could not be easily allocated to any of the established sub-heads.

The total estimated cost of $F 116,894, when converted at the rate of Fiji $1.00 = US$1.26, amounted to US$147,286. This rate was applicable in August 1973. However there have been fluctuations in the exchange rates and since funds were transferred periodically in U.S. dollars, the actual sum realized in Fiji varied.

One of the items included in the project, the Husbands' Survey, had to be dropped because of the pressure of other commitments. An amount of $F5,280 was therefore deducted from the original estimates incorporated in the Agreement.

Adjustment of these original estimates had to be made because of two factors. Firstly, there was the oil crisis which affected almost every facet of our work. Transport costs increased, even when petrol was available. Secondly, due to inflation, partly created by the oil crisis, local salaries and wages were revised. These factors together necessitated an upward revision of the total budget by over 21 per cent which was negotiated and agreed with ISI. Inclusion in the Agreement of clauses allowing for such unforeseable circumstances is always helpful. Had the Agreement been inflexible and any shortfall to be found from local funds, the FFS would certainly have been affected adversely because there was a general pruning of Fiji Government expenditure at that time.

The revised cost structure and the actual expenditure are contained in the table below.

PROVISIONAL ESTIMATES – FIJI FERTILITY SURVEY
PHASES OF OPERATION
($F)

ITEM OF EXPENDITURE	PRE-TESTING	HOUSE-HOLD LISTING	MAIN ENUMERA-TION	HUSBANDS SURVEY	POST ENU-MERATION CHECK	VALIDA-TION CHECK	HEAD-QUARTERS	TOTAL
Personal Emoluments Headquarter Staff	–	–	–	–	–	–	18,845	18,845
Field Staff Remuneration	1,050	6,200	21,400	1,980	1,700	900	–	33,230
Travelling	150	3,500	10,005	1,140	900	480	6,000	22,175
Subsistence	1,050	3,000	7,200	2,160	384	1,200	6,000	20,994
Equipment	–	–	–	–	–	–	8,100	8,100
Printing, office supplies and recruitment advertising	–	–	–	–	–	–	10,400	10,400
Overseas air-freight	–	–	–	–	–	–	2,150	2,150
Independent audit	–	–	–	–	–	–	1,000	1,000
TOTAL	2,250	12,700	38,605	5,280	2,984	2,580	52,495	116,894

REVISED ESTIMATES WITH ACTUAL EXPENDITURE

ITEM OF EXPENDITURE	REVISED ESTIMATES $F	ACTUAL EXPENDITURE (as at 30/11/74)
Personal emoluments – staff	18,845	23,863
Field staff remuneration (including supervisors, enumerators, editors and coders)	43,520	48,220
Travel and subsistence	55,084	20,954
Equipment and vehicle maintenance	9,045	4,729
Printing, office supplies and recruitment advertising	12,240	5,297
Overseas freight	2,150	699
Independent audit	1,000	–
TOTAL	$ 141,884	$ 103,762

It should be mentioned that the actual costs of data punching and computer analysis, and international travel by technical staff from Fiji as well as London, were met by WFS headquarters and are therefore not included in the figures given above. It is to be further noted that salaries of local technical staff were not borne by FFS budget.

Comparison of the revised estimates and actual expenditure show that salaries for headquarters and field staff were slightly under-estimated but travel and subsistence vastly over-estimated. The main reasons for salary discrepancies were the extension of field work because of bad weather and the failure to anticipate the need for some staff to remain after the end of coding to deal with accounting matters and reconciliation of computer queries. During this latter period all Government salaries were increased again, and we therefore had to pay higher rates as well as extra leave pay.

The very large saving on travel and subsistence reflects overgenerous budgeting as well as the considerable economy and tight control of field expenses that were exercised throughout the project. In calculating average weekly expenditure in the field on travel and subsistence, we failed to appreciate the fact that most field staff would be working in urban or densely settled areas and would be able to return home each night. Their expenses were therefore confined to bus fares.

Comparison of other sub-heads is somewhat misleading because accounts have not yet been finalized. A large account of at least $F1,000 with the Public Works Department for running costs of the survey car is still to be processed; the printing of reports has not yet

been done nor is the independent audit completed. Overseas freight costs were lower than expected because WFS staff were able to take as unaccompanied air-baggage the bulk of the coding sheets.

At no stage was the FFS affected through financial constraints, thus ensuring a smooth run of events and permitting *ad hoc* decisions. Furthermore, budgetary control from ISI was not oppressive, allowing further local flexibility.

Funds were remitted regularly upon request by ISI through telegraphic transfers to a local bank, which issued bank cheques for the amount in question. These cheques were then paid into the Fiji Government Treasury, which maintained an account styled 'FFS Deposit Account' From this account, regular sums amounting to no more than $5,000 at a time were drawn on an imprest system and maintained in a current account at a local bank.

All payments to the field staff working in the Suva area and payments to commercial firms were made from the Imprest Account. Payments to field staff in outlying regions and firms were made in the form of Treasury cheques which, according to local tradition, are more easily cashed in rural areas. These cheques were debited against the deposit account. Settlement of accounts with other Government Departments was also done through the Treasury machinery.

Accounting records consisted of a voucher book, a vote ledger, a bank imprest cash book, an imprest tear-off cash book and related vouchers, and subsidiary books for reconciliation purposes. Sets of wage record cards were opened for each member of staff and separate cards for Fiji National Provident Fund deductions and contributions were also maintained.

Though this dual system – imprest and deposit accounts – had some advantages, there were serious drawbacks. Most importantly, it meant that a duplication of accounts between the Treasury and the FFS team occurred. Detailed and laborious reconciliation between the two were thus required. Delays were experienced because there is a lag of about four months before the Treasury produces its account for a given month. This was particularly inconvenient because 'confirmed' figures of expenditure were required by The Hague at the end of each month. It also necessitated retention of the accountant for several months after the end of the main survey period.

The lesson from the Fiji experience is that careful thought should be given before deciding which accounting system to adopt. Very often, as in our case, involvement in the government financial machinery may only produce extra work and excessive delays. A more independent self-accounting system will usually be preferable.

Auditing of all government accounts is normally undertaken by the Auditor-General. Thus the FFS Deposit Account will be audited by his staff. However, the Agreement stipulated an independent audit and this is being undertaken for an agreed fee of not more than $F1,000 by a firm of chartered accountants in Suva.

III Recruitment and Training of Field Staff

A. RECRUITMENT

1. Introduction

As there existed in Fiji no reservoir of experienced interviewers, a major recruitment and training effort was required. It started with two press advertisements and three radio announcements, inviting women to submit in writing their personal details and any relevant experience. Over 500 applications were received and about 300 of these were chosen for interview. Twenty-four women, including three who had worked on the pre-test, were selected for supervisor/senior enumerator training and a further 75 for training as enumerators. A slight surplus over requirements was recruited to allow for wastage in training but this tactic was largely negated when 5 recruits failed to present themselves for training.

2 Adequacy of response

In general, response to recruitment efforts was encouraging in its volume, with the radio announcements being particularly effective. As expected, there was a greater response from Fijians than Indians, and from towns than rural areas. These differentials were not severe enough to cause concern except in rural areas of the Western Division. In these areas, the National Director found it necessary to supplement the mass media by personal canvassing of local officials to broaden the choice. Despite this extra effort, 3 Indian enumerators from this Division had to be dismissed as unsuitable at the end of training.

It is our impression that, though the calibre of recruits in Suva was higher, the quality of enumerators in other areas never fell sufficiently to threaten the standard of field work.

3. Assessment of candidates

It is no easy task to assess the suitability of a candidate for enumerator training within the space of a few minutes. Often difficult decisions had to be made between younger, more sophisticated girls with apparently greater ability to learn and a better command of English, and older women who would presumably be more reliable and more likely to establish rapport and a sense of confidence with the respondents.

Though preference was given to married women and to those with secondary education, no rigid rules were made in these respects. This flexibility was wholly justified as the exclusion of single girls and the less-educated would have severely limited the choice and robbed us of some of the best enumerators.

Experience in the main survey suggests that young, single Indian enumerators did

encounter some resistance from older respondents. Some overcame this by pretending that they were married while others, following instructions given in training, argued that they had been specially trained for this job, and that their personal lack of experience in motherhood and family planning was irrelevant. In short, it seems that difficulties were overcome.

One obvious constraint on selection of applicants was the need to recruit Fijian and Indian enumerators in proportions corresponding to the racial composition of the sample. A special effort was required to recruit a Banaban enumerator for one sample area inhabited exclusively by Banaban people, who are distinct in ethnicity and language. Similarly, in a few remote districts with pronounced regional Fijian dialects, it was necessary to employ enumerators conversant in these dialects.

It was anticipated that some 5 per cent of our sample would be European or Chinese in origin. However no attempt was made to recruit enumerators with these backgrounds because the majority could be interviewed in English. In fact, the services of a Chinese translator were required in one case only. No doubt, better rapport with these minority groups would have been established if we had employed a European and a Chinese enumerator. But in view of their small number and scattered distribution, this tactic was impracticable.

The majority of candidates were interviewed by the National Director who visited all the main towns in the Dominion, but some assistance in selection was given by other technical staff. As an *aide-memoire* and as an insurance that all selection interviews would follow the same pattern, the following list of topics was prepared.

Interview Questions

Verify:
- Name
- Address
- Age
- Educational Qualification
- Marital Status

Any children? Age of eldest and youngest child.
Who will look after them when out on enumeration?
Any experience in meeting people?
Why are you interested in this work?
Have you worked anywhere?
Outdoor work in rain or shine. Prepared to work?
Prepared to live away from home? If so, where?
Can you attend training period for 3 weeks?
What do you expect in the way of wages?
Are you happy with the rates advertised?
What travel arrangement do you expect?
Are you prepared to work in a group, under a supervisor?
Would you prefer to work as supervisor or enumerator?
Any questions?

Only one other topic of significance was routinely raised at the interview. Each candidate was asked for her personal opinions about family planning in order that anyone professing extreme views on the subject could be screened out. No such candidates were encountered.

The one test of ability administered consisted of 3 questions in Fijian or Hindustani taken from the questionnaire. These were shown to candidates for immediate verbatim translation into English. This test proved most useful in assessing grasp of the English language, a sound knowledge of which was essential. For Indian ladies, it also revealed the ease with which they could read Romanised Hindustani; as the questionnaire used Roman script, this ability was another prerequisite for selection.

Whether another test, or tests, of ability should also have been given is debatable. An effective mode of screening candidates for numerical ability would have been beneficial for many trainees proved to be extremely weak in elementary arithmetic and this deficiency had serious consequences. However, it is doubtful whether any such test would have given a fair assessment, bearing in mind that many women were extremely nervous and flustered during the selection interview. Legibility of handwriting should perhaps also have been ascertained, though no great problems in this respect were encountered during field work.

Two further minor points about selection are perhaps worthy of mention. First, we experienced some difficulty during the main field work with a few young Indian enumerators who showed a marked preference for mini-skirts rather than saris. In view of the unsuitability of the former garment for working in rural areas, it would have been prudent to warn younger applicants that they would have to modify their appearance to suit the job.

Second, successful candidates were notified by letter (or occasionally by telephone) some 3 to 4 weeks before the beginning of enumerator training, but they were not requested to notify their acceptance of the post. In the event, 5 women failed to present themselves for training for a variety of reasons. If formal acceptance had been requested, it is probable that this short-fall could have been foreseen and appropriate action taken. It is also regrettable that unsuccessful candidates were not promptly informed.

4. Recruitment of surplus trainees

In view of the lack of experienced enumerators and the difficulties of assessing candidates, the strategy of recruiting a large surplus of trainees and retaining only the better ones for enumeration had obvious attractions. However, the local staff considered that the dismissal of a large number of candidates at the end of training might create hostility towards the survey. As Fiji is a small country, the dissatisfaction of a few might have had serious repercussions. Moreover, it was felt that, while this strategy would probably be successful in a Western country, it might create tension in a culture where the ethic of competitive individualism is less pronounced. On a more practical level, too great an inflation in the number of trainees would have created pressure on training facilities, training staff and financial resources. It was therefore decided to recruit a mere handful of

surplus women, who could probably be absorbed into the clerical staff. In the event, this intention was thwarted by the failure of 5 recruits to attend training.
In retrospect, a substantial surplus (say 20 to 30 per cent) over requirements could have been recruited without running the risk of causing resentment if applicants had been recruited just for a training programme with no promises about a subsequent job. In this case, it would have been preferable to pay full salaries of $F25.00 a week and expenses during the training period, instead of the training allowance of $F15.00.

B. TRAINING

1. Introduction

The twenty supervisors were trained in Suva for two weeks. Their course was jointly conducted by all four local technical officers and two WFS staff from London. The training of the seventy enumerators lasted for three weeks and took place simultaneously at three centres – Suva, Lautoka and Labasa – immediately following the supervisor training.

2. General discussion

The training programme in Fiji had two basic aims: trainees had to fully comprehend and internalize the role of a social survey interviewer and, at the same time, master a lengthy and complex questionnaire. Either one of these aspects by itself would have presented no problem but, in conjunction, they represented a substantial task that taxed the energy and imagination of the trainers for five weeks. However, we consider that this facet of the survey was well designed and was as successful as could be expected.
Timing and organization contributed to this success. Prior training of supervisors for two weeks in the presence of all technical staff permitted the moulding of a common approach and refinement of teaching methods that were put to effective use during enumerator training. Though the fortnight allowed for training of supervisors was rather too short, there was ample opportunity to give supervisors additional field practice and instruction in special sessions during the enumerators' course. By the end of the first week of enumerator training, the better supervisors could be fully trusted to play an important part in training by leading group discussions and assisting individuals. Their help in this respect was essential for, without it, the ratio of trainers to trainees would have risen beyond the critical level of about 1:5 and the quality of individual knowledge and tuition, so neccesary for successful training, would have been lost.
Serious consideration was given to the suggestion that all seventy enumerators be trained at the same centre. But the decision to split the group into three was correct, as a single group would have been overwhelming in size and unwieldly in management. Even at Lautoka and Suva, the two larger training centres, staff felt that the size of the group was at a maximum and that any further increase would have been harmful to cohesion and camaraderie. The use of regional centres also represented considerable financial savings in travel and subsistence allowances. The major theoretical disadvantage – lack of uniformity – was overcome by the prior experience of supervisor training, by lengthy manuals

of instruction and by a detailed programme for training to which all centres adhered. This programme covered the first two weeks of enumerator training, leaving flexibility for the last week. It is shown in Appendix 8, and adequately describes the overall design of the training course.

3. Facilities and equipment

The training centre at Suva was ideally suited to our purpose, consisting of two spacious rooms with large wall blackboards, ceiling fans, and ample tables and chairs. In Labasa, the regional administration centre, used for training, proved adequate but in Lautoka the only available facility was a small, poorly ventilated chapel possessing only one table and a decrepit easel blackboard.

At the beginning of training, participants were issued with the following:

Questionnaire
Pens – blue and red
Manual of Instructions
Detached copies of the Household Schedule
Copy of relevant sections of the Statistics Ordinance
Training Programme
Identity Card
Name Badge
Note Book
Briefcase

The only additional equipment used in training were five cassette recorders and poster-size reproductions of the household schedule and key pages of the questionnaire. The latter proved particularly useful in explaining recording procedures and skip instructions in front of the whole class. The lack of other audio-visual equipment was not felt.

4. Length of training

The optimum length of training is a delicate balance between thoroughness and boredom. On the basis of our experience with the supervisors, we knew that at least three weeks would be needed for the enumerators. We further decided that the regional staff could extend training into a fourth week, if necessary, but none chose to do so. The reason is not so much that all candidates had reached a state of near perfection but that trainees and especially supervisors were becoming anxious to start the job. We felt that the law of diminishing returns would apply to any prolongation of training because keenness and interest in the work would decline. In retrospect, a full scale 'dress-rehearsal' involving 3 or 4 days in the field followed by one final day of assessment and feedback might have raised standards without affecting morale.

Uneven progress of pupils is a problem of all teaching, and survey training is no exception. By the end of the second week, it proved easy to identify the weaker recruits and

special attention was given to them in the last week. With individuals who were still below standard at the end of the third week, there were two possible solutions: dismissal or further remedial training. The first option was exercised in a total of four cases and the second in about ten cases. Accordingly, the latter ten girls spent the first few days of field work interviewing non-sample households under close supervision.

5. Formal lectures

Fiji is a multi-racial country with two major ethnic and linguistic groups. The language common to both communities is English which is also the official language of the country and the medium for some primary and all secondary education. Instruction in front of the whole class therefore had to be given in English, but group work was conducted in Fijian and Hindustani. Differing levels of competence in English complicated the task of training and there is no doubt that language difficulties, combined with the novelty of many concepts, represented a barrier to total comprehension.

Quite apart from linguistic considerations, it was our experience that formal lectures were not an effective medium of instruction. With the temperature at 90°F and humidity often near 100 per cent, the universal tendency towards drowsiness during lectures all too often prevailed. We therefore kept such lectures to a minimum, concentrating more on discussion, demonstration, or group work, where interest could be more easily maintained.

6. Role-playing

Extensive use was made of role-playing, in front of the whole class, in groups and in pairs. On the second morning of training, a complete interview was rehearsed in English with one of the technical staff or a supervisor acting the part of respondent. Later on in training, this exercise was repeated with a more complicated case history to demonstrate the use of probes and detection of inconsistencies. We also attempted to use such 'dummy' interviews to give trainees practice in recording procedures but bad accoustics, language difficulties and non-verbal responses rendered this unsuccessful.

We soon learned in group sessions that role-playing did not come easily, especially to the more inhibited Indian enumerators. Careful preparation in form of a 'script' entered on a questionnaire and a judicious choice of 'actress' was necessary to avoid a decline into bewilderment or giggles.

7. Manuals

During the supervisor course, two manuals – one of 80 pages for all field workers, and one of 18 pages for supervisors – were in the final stages of preparation but both were complete for the start of enumerator training. The manuals had three purposes:

a) to act as training aids;

b) to act as a reference source during field work;

c) to provide clarification and uniformity of approach amongst technical staff.

As a training aid, the manuals were not of great assistance. Though they were couched in simple and informal English, we suspect that many trainees did not digest the contents. This is not surprising as some had probably never read more than a newspaper since leaving school. The spoken word was much more effective than the written word. This observation applies particularly to the section 'General Notes on Interviewing'. In this sphere, learning must be by example and practice, and a lengthy text is superfluous. Detailed notes on individual questions, on the other hand, can be referred to when the occasion arises and proved more useful in training. The section on field work procedures was also useful.

As a reference source during field work, the manuals were undoubtedly of assistance though many enumerators displayed a disinclination to use them as intended, preferring to voice their doubts and problems.

As a means of clarifying the thoughts of technical staff and moulding uniformity, the manuals were indispensable.

From our experience, we conclude that manuals should contain a minimum of general discussion or exhortation. Conversely, the greater the number of specific problems, difficult answers, and tricky field situations that can be anticipated and included in manuals, the better.

8. The advantages of female trainers

One of the difficulties in training is the 'social distance' between trainers and trainees which inhibits the communication of problems and worries. When the trainer is of much higher educational and social status, and when his mother tongue and sex differs from those of trainees, these inhibitions may become a serious barrier to effective training, though personality and the atmosphere of the course naturally can mitigate these factors. It was noticeable during the Fiji training, that enumerators quite naturally tended to approach female rather than male trainers with their more personal problems. We would suggest, therefore, that selection of training and technical staff should be given a strong feminist bias.

9. Field practice and cassette recordings

It took 5 to 6 days' training before trainees were considered ready to conduct their first practice interview in the field and even then, the results of this initial encounter were frequently disastrous. The supervisors, during their own training, carried out their first field interview alone but the enumerators worked in pairs and were accompanied by a supervisor: an arrangement deliberately designed to lessen the trauma of the event.

Group discussion of problems and individual counselling and scrutiny of completed questionnaires followed each field session; and it was probably at these times in the course that the most striking gains in comprehension and ability were registered. A minimum of 12 field interviews were done by each trainee. By this time, most had nearly reached their 'plateau of competence' though there probably would have been slight gains in increasing the number to 18–20. It is our impression that little purpose would be served by going

beyond this point.
Cassette recordings proved invaluable in assessing field interviews (though we soon learned that it is unfair to burden a girl with a recorder on her first day in the field). It was found that most benefit could be gained by listening to a recording in small groups of 3–4 persons. Larger groups were impracticable because close proximity to the machine was often necessary to hear the dialogue; and individual sessions would have been too time-consuming.

10. Selection of households for field practice

During training of the listers themselves, some households in non-sample areas were listed and these addresses were available for later use in supervisor and enumerator training. But this source was soon exhausted in Suva and Lautoka. In Suva, non-selected households in sample areas were then utilized, on the assumption that 'contamination' of the sample by gossip and rumour would not reach serious levels in a city.
In Lautoka, special listing of a non-sample area was carried out to generate further households but this supply was also exhausted before the end of training and for the last few days, the Suva policy was followed. Though it is obviously undesirable to conduct training in sample areas, no serious ill-effects were noted. In retrospect, it is apparent that we failed to realize how large a number of practice households were needed for training purposes. The simple multiplication of the number of trainees by the required number of field interviews per head is an inappropriate mode of calculating this requirement for each trainee must be given 5 or 6 addresses from which to draw 2 interviews to allow for absent households and preferably these should be clustered to avoid an excessive travelling time.

11. Assessment of Trainees

All completed questionnaires and other written work were graded (e.g., good/fair/poor) by the trainers and entered on a performance record. This allowed the instructors to chart the progress of each candidate and gave a fair and comprehensive base on which to accept or reject at the end of training.
One substantial written test of ability was administered towards the end of the second week. This proved successful not only in its manifest purpose but also as a training aid and in emphasizing that the course could not be taken lightly. This test is reproduced in Appendix 8.

IV The Questionnaire and Related Matters

A. PRE-TEST OF QUESTIONNAIRE

1. Introduction

In September 1973, a questionnaire based on the contemporary WFS version was drafted. Only the more difficult questions were translated into Fijian and Hindustani as it was thought at this stage that the 'simple' items could be translated by the enumerators themselves. This questionnaire was pre-tested by six enumerators who were selected on the recommendation of Government officials. Six areas on the main island of Viti Levu were chosen so as to give a reasonable cross-section of the population. After a week's intensive training, each enumerator was told to complete 34 interviews, drawing an approximately equal number from specified localities in her assigned area. Selection of actual households was left to enumerators. In this way 200 interviews with ever-married women between the ages of 15 and 49 years were completed. Twenty interviews were tape recorded and 12 of these were transcribed and translated into English.

2. General discussion

The pre-test was undoubtedly one of the least successful aspects of the whole survey. Two factors conspired to make this so. First, radical changes in the WFS model were made after the pre-test had been completed so that the final questionnaire bore little relation to the pre-test version. Hence the main function of the pre-test was severely eroded. However these changes were a consequence of the pilot nature of the Fiji Survey and are unlikely to recur in other countries. The second factor was the tight time-schedule which did not permit adequate preparation for the pre-test.

However, the pre-test was not entirely worthless. It emphasized the need to translate all questions into Fijian and Hindustani; it demonstrated the usefulness of cassette recordings in assessment of interviewing defects and problems, and indicated that co-operation of the public in a sample survey of this nature would be forthcoming.

3. Timing

There is a general dilemma over the timing of pre-tests. The earlier they are held, the more likely it is that the questionnaire will be premature, manuals meagre and overall strategy and preparation inadequate. The later they are held, the less time there is to undertake subsequent revision of questionnaires and other procedures, and the greater the interference from other pressing claims on the time of technical staff. Perhaps the ideal solution is to retain a measure of flexibility over the timing of the main field work until piloting and pre-testing stages are complete. A readiness to conduct miniature pre-tests of altered sections of the questionnaire is also desirable.

The Fiji pre-test suffered both from prematurity and from inflexibility of the time-table. It was premature in terms of the questionnaire to be tested, and the manual, which was prepared in haste, had to be short. Furthermore, enumerators only received one week's training, an inadequacy that resulted in a low quality of interviewing.
The inflexible and tight time-table meant that insufficient time was available to conduct any field testing of the substantially altered final questionnaire or household schedule. Therefore, the fact that no serious flaws in the questionnaire were uncovered during the main field work reflects not only skilful design and careful translation but also a measure of luck.

4. Recruitment of enumerators

For a pre-test one wants highly skilled enumerators who can spot and report difficulties in the interview and who can act subsequently as senior supervisors during the main field work. As there were no experienced female enumerators in Fiji, recruitment was a serious problem. The only way of ensuring a high quality amongst enumerators would have been to mount an extensive recruitment campaign but this would have been too great an effort for such a small intake and would have jeopardized successful recruitment three months later for the main field work. Instead, recruitment was based on personal recommendation – a strategy which did not prove successful. Only three of the pre-test enumerators were good enough for subsequent promotion to supervisors, and only one of them proved to be highly competent.

5. Sampling arrangements

The pre-test was conducted by six enumerators working in six areas. Although this arrangement gave a reasonable cross-section of the population, it meant that the girls worked singly in localities that were sometimes isolated and dangerous; and the scatter of areas over the main island made close supervision impossible. A further defect was the use of a quota-type sample whereby enumerators themselves selected households. In retrospect, it would have been better to have undertaken proper mapping and household listing so that these aspects of sample implementation, together with problems of locating households and refusals, could have been studied. In this way some of the difficulties and defects which only became apparent during the main survey could have been anticipated and appropriate counter-measures taken.

6. Concluding remarks

The Fiji pre-test was probably doomed from the start by the coincidence of three factors: a tight time-table, a changing questionnaire and a lack of experienced interviewers. Though we assume that future WFS surveys will not suffer in this way, an issue of general importance was raised by our experience. In countries with meagre interviewing resources, we suggest that the pre-test should act not only to fulfil its manifest purpose but also as an opportunity to develop a small cadre of skilled and experienced interviewers, who will then be of immeasurable benefit in the main training and interviewing

phase. Indeed the recruitment of university graduates, or women of similar calibre, who can be groomed to act in a junior technical capacity, should always be seriously considered.
A second general point concerns the time-table. If the pre-test includes some mapping and listing – and our experience suggests that this will be a useful procedure in some countries – and if training of interviewers is thorough, at least two to three months will be needed to conduct and analyse this aspect of the survey.

B. TRANSLATION OF QUESTIONS

1. Introduction

Following the experience of the pre-test, all questions in the main questionnaire were translated from English into Fijian and Hindustani. However, instead of producing three versions of the questionnaire, it was decided to print one version containing all languages. This arrangement considerably simplified problems of supply in the field and reduced printing costs. Furthermore it did not, as might have been expected, make the questionnaire visually cluttered or complex.
The questions in the household schedule were not translated. As there would be inevitable variations in the way questions were phrased – some directly relating to the respondents, and others concerning household members not present – it was considered that a translation was inappropriate. In addition, there was the problem of inadequate space on the schedule itself for printing in three languages. Though three separate versions of the schedule could have been produced, this would have raised printing costs and created administrative inconvenience. Despite these valid objections, we now think that the schedule should have been translated as it contained a number of difficult concepts such as 'usually reside' and 'ever-married'. In the final analysis, failure to translate these and other items was inconsistent with the policy adopted for the main interview.
In the following discussion the mode of translation and some of the difficulties faced are described. A brief impression of the extent to which enumerators deviated from written translations is given but a fuller assessment, based on recorded interviews, can be found in Section D of this chapter.

2. Fijian translation

The indigenous Fijian, although settled in a small country, has two language families, known as Eastern and Western, consisting of about 100 different dialects. The official and accepted dialect used in press and radio is 'Bauan'. With the increasing mobility of the people within Fiji and also with the introduction of new languages like English and Hindustani, these different dialects have experienced some changes in the recent past. New words have been introduced and some old words have undergone changes in their literal meanings.
As most Fijians understand Bauan and since it was clearly impossible to cater for all dialects, it was decided to translate the questionnaire into Bauan. The initial translation

was done by one of the technical officers in conjunction with the assistant administrator. The first translation was then given to an independent person, a Fijian language instructor, for translation back into English. On this basis, a few changes were made and the second draft was then tested with members of a mothers' club to assess comprehension. The only serious problem encountered during translation was the existence of Bauan words which are used in other dialects but have different meanings. This problem could only be solved by recruiting enumerators conversant in these dialects, who could thus ensure that the original meaning of the question was not lost.
It is our impression that about 80 per cent of interviews were conducted without difficulty in Bauan and that questions were easily comprehensible. No mistakes in translation were noticed.

3. Hindustani translation

The linguistic situation amongst Indians is complicated. The original migrants came from many parts of the Indian sub-continent and spoke several different languages. From this diversity has emerged a simplified form of Hindustani, unique to Fiji. But some differences in vocabulary and mode of expression still exist. Furthermore, Indians in predominantly Fijian areas speak a mixture of Fijian and Hindustani while others, mostly in the towns, speak a mixture of English and Hindustani. Ability to understand and speak 'correct' Hindustani varies considerably with the extent and type of education received.
It was therefore no easy task to derive a translation equally comprehensible to all. In the pre-test, 'correct' Hindustani was used but this proved unsuccessful. For the main survey, it was decided to use the lowest common denominator: a very simple colloquial Hindustani with a few English words in parentheses. This ran the slight risk of offending linguistic purists and better-educated respondents, but was the only possible solution.
Translation was done independently by two technical officers and a female employee of the Bureau. An amalgamated version was made and this was tested amongst some members of the public and re-translated into English.
Despite these precautions a number of minor errors were noticed after printing of questionnaires. For instance 'usually' – 'kabhi-kabhi' – in Q.101 and Q.102 was translated as 'always' – 'hamesha'; in Q.306 the phrase 'any of these (methods)' – 'koi bhi' – was omitted; and in Q.801 'former (husband)' – 'pahale' – was translated as 'first (husband)' – 'pahala'. Most mistakes were spotted before the end of training and suitable amendments incorporated into the instructions to enumerators.
It seems that Indian enumerators experienced more difficulties with comprehension of questions than Fijian field staff and more frequently had to resort to re-phrasing in even simpler language. Another problem, not faced with Fijians, was unfamiliarity of some enumerators with written Romanized Hindustani. Though our decision to use this script was correct, a great deal of training time had to be devoted to increasing their fluency of reading.

C. THE HOUSEHOLD SCHEDULE

1. The respondent for the household schedule

Enumerators were instructed that any responsible adult who was a usual member of the household could answer the questions in the household schedule, though, wherever possible, the head or his wife should be questioned. Enumerators preferred to fill in the schedule in the presence of at least one of the principal women of the household, for men were less likely to recall ages of children and fertility data. No doubt, this entirely valid reason for interviewing women was reinforced by the enumerators' natural inclinations to converse with members of their own sex.

However, the general problem of the competence and reliability of informants to answer items in the schedule, especially in large households, caused some understandable confusion amongst enumerators. Is the testimony of grand-parents, aunts, sisters-in-law sufficiently reliable or should a recall be made? Unfortunately, there can be no precise answer to such a question for it is a matter of judgement in which the reliability of the informant, the remoteness of the area (and hence the feasibility and cost of a re-visit), and the duration of absence of key household members are all factors to consider.

This uncertainty was compounded by a misunderstanding amongst some enumerators about eligibility for the main interview. There were four conditions of eligibility: sex, age, marital status and residence; but it was only the last that caused difficulty. It was repeatedly stressed during training that if a woman did not sleep in the house on the night prior to a visit, then the household schedule should be completed but the woman herself was ineligible for the main interview (unless she had already returned before the enumerator's arrival) and no recall was necessary. Despite this instruction, technical officers noted a tendency during field work for enumerators to record 'not at home' on finding that an otherwise eligible woman was away last night, and to fail to fill in the household schedule, even though other adult members of the household were present. This tendency – understandable in terms of the enumerators' simplistic view that the purpose of the survey was to conduct detailed interviews with women – is clearly contrary to the principles of the sample design though it probably did not occur with sufficient frequency to cause serious harm: but it may have resulted in loss of information in remoter areas where re-visits could not be made.

2. Administering the household schedule

Listing of household members was on a *de jure* and a *de facto* basis. In other words, usual members, temporarily absent, were listed as well as visitors resident the previous night. In order to forestall any tendency to omit visitors, enumerators were trained to list all those present last night, including visitors, before recording usual-but-absent members.

This instruction was poorly conceived and consequently was not followed by enumerators. The latter soon found that it was more natural and easier to record usual members first and then enquire about visitors.

Some enumerators (E) took this tendency to extremes by obtaining a list of children, before checking on usual membership, for example:

E 'Is [X] – the head of this house?'
R 'Yes.'
E 'What's your name?'
R '[Y] – [Y] –.'
E 'Are you his wife? All right, will you tell me the names of your children, starting from the oldest.'
R 'The eldest is [P].'
E 'The name of the next one?'
R 'The next one is [Z].'
E 'All right, do you always live here?'
R 'Yes.'
E 'Did you all stay here last night?'
E 'Yes.'
E 'Did any visitors sleep here last night?'
R 'No'.

These procedures facilitated the specification of relationships in column 2. Whether, as a consequence, there was any tendency to omit visitors cannot be established at the time of writing. However, a comparison of the numbers of usual-but-absent members and visitors will be made when data from household schedules become available.

During training, it was suggested to enumerators that the schedule should be completed in the following manner. First, list all members and then complete columns 2–4 (i.e., relationship and residence) working vertically. Finally, ask the remaining questions in columns 5–19, taking each member in turn (i.e., working horizontally). In practice, most enumerators, appeared to find it easier to fill in columns 5and6 (i.e. sex and age) as well as columns 2–4 vertically. This method had the advantage that all ages could be recorded at the same time, thus avoiding the inconvenience of repeated references to birth certificates, family bibles or other documents containing these details. Columns 7–16, the fertility data, were taken, of course, row by row while the remaining columns 17–20 (i.e., marital status, race & eligibility) were sometimes filled in horizontally and sometimes vertically.

Though the contents and order of items in the schedule had been the subject of careful consideration, they remained far from satisfactory. The fertility questions were deliberately placed before the items on marital status in an attempt to reduce the embarrassment that would occur if fertility questions had been asked **after** it had been established that a girl was single (the tempting strategy of confining fertility questions to ever-married women was impermissible in the case of Fiji where pre-marital fertility reaches significant levels). It is doubtful, however, whether this ordering of items fulfilled its intention. Resentment or at least 'raised eyebrows' are inevitable when fertility questions are asked about girls of 15 or 16, many of whom are still at school.

E 'Is [X] 16 years old?'
R 'Yes.'
E 'Has she given birth to any children?'
R 'No, such things never happened to my daughters.'
E 'She has not given birth to any children?''
R 'She is about to get married.'

Another unsatisfactory aspect of the layout was that columns 17–19, which were applicable to men as well as women, were separated from all other 'male' items by the fertility columns. In consequence, enumerators sometimes forgot to complete them for men.

A further unfortunate feature of the household schedule concerns the repetition of fertility questions for eligible women. As the main interview usually followed the schedule, most eligible women were asked two almost identical sets of questions on live births within a span of ten minutes. Furthermore, the data were collected first of all in the schedule, while precisely phrased and translated questions followed later in the main interview. Thus enumerators may have been tempted to skip the questions on page 9 of the questionnaire and merely copy the answers given earlier. Though we have no evidence of omission of questions, it is clear from recorded interviews that some enumerators used the questions in the main interview merely to confirm the answers already given in the schedule. For instance Q.202: 'How many sons of your own are now living elsewhere? Please include any who have been given away in adoption.' becomes 'You told me that you had no sons living away. Is that right?'

As there is every reason to believe that interview questions yield data of better quality than those in the schedule, the temptation to take short cuts in this way may have had serious consequences. The other possibility, omission of fertility questions from the household schedule and subsequent copying of relevant data from the questionnaire, was observed by technical staff on a few occasions. This tactic, though contrary to instructions, poses no threat to the quality of response and, indeed, represents a sensible solution by enumerators to a defective research design.

The solution to this defect is by no means obvious. One possibility in surveys where the main interview usually follows straight after the completion of the schedule is to establish eligibility before the fertility questions and ask the latter only for the non-eligible women. But this raises further difficulties concerning eligible women who refuse the main interview or cannot be contacted, for in such cases valuable data would be lost.

A few other minor points may be mentioned in connection with the schedule. There did not seem to be any difficulty in establishing usual membership of a household and the fear that all children would be included regardless of their current residence remains unsubstantiated.

As expected, enumerators faced considerable difficulties in ascertaining the ages of old members and sometimes resorted to recording 'don't know'.

The phrase 'now living with you', used in columns 7–10, appears to have been misinterpreted in some cases. Instead of the intended meaning 'living with you these days', it was

taken to mean 'living with you at this precise time'. The same tendency was noted for similar questions on page 9 of the main questionnaire.
In columns 13–16, enumerators sometimes entered the birth date of the last living child rather than the last live birth. Clearly, this question should have been translated in an attempt to reduce the understandable tendency of respondents to think only in terms of living children.
The question on marital status in column 17 raised few difficulties. The distinction in the Fijian language between boyfriends and co-residents is clear-cut, and the subject of *de facto* unions discussed without shame. Amongst Indians, the transition from an unmarried to an ever-married state is usually pronounced. The few 'deviant' cases amongst the latter community were probably carefully concealed from enumerators.
Finally, a good example of an apparently trivial error in design which, nevertheless, caused some trouble can be seen in column 18. The abbreviation 'S' for 'separated' was an unfortunate choice for this letter is commonly used to denote 'single' and was used as such on occasions.
In summary, the household schedule surprised us in the difficulties it presented and errors it generated. Its visual simplicity was beguiling.

D. THE MAIN QUESTIONNAIRE AND INTERVIEW

1. Introduction

The following discussion is based on the impressions of technical staff during field trips (and to a lesser extent during training), on verbal and written accounts by enumerators themselves and on the 36 recorded and transcribed interviews. In a few instances, data computed in London have been used to amplify a theme. More objective assessments of the quality of data will be found in Chapter 5 of the Country Report dealing with the Post Enumeration Survey and comparison of interview data on contraceptive use with medical records.

2. Eligibility.

To be eligible for the main interview, a woman had to fulfill three conditions. She had to be over 15 but under 50 years of age; she had to be currently or previously married; and she had to have slept in the household on the night prior to the enumerator's visit. The general rule was thus to interview all ever-married women within the specified age range who had slept in the house on the previous night, whether or not they were temporary visitors or usual household members.
However, some important exceptions to this general rule were made. Usual members of a household who happened to be away last night but had returned home before the arrival of the enumerator were considered eligible for interview. As a counter-balance, visitors who had left the household before the arrival of the enumerator and were not expected to return were classified as ineligible.
Though these adjustments were motivated by practical considerations, their value is

debatable for they tended to confuse field staff. Furthermore, enumerators sometimes failed to make a note on the household schedule to explain that they had encountered a valid exception to the general rules of eligibility. These omissions caused difficulty in the editing sector and some cases had to be referred back to the field for clarification.

Only 20 'departed visitors' were notified but a total of 95 women who did not sleep in the selected household on the previous night were interviewed. We suspect that about 20 of this latter group should not have been interviewed for the date of completion of the household schedule precedes the date of the main interview. The remainder, however, were interviewed on the same day as the schedule and therefore are probably genuine 'returned usual members'.

Another exception to eligibility rules concerned nationality. Women of European origin who were not citizens of Fiji were not considered eligible, even though they might fulfil all other conditions. The reason for this exemption lies in the fact that most such women are short-term residents of the country and thus do not contribute in a full sense to indigenous fertility. Only 10 European non-citizens were encountered. We considered the exclusion of non-citizens of other ethnic origin but decided against it on the grounds that they would be difficult to identify without an additional question in the household schedule and, in any case, would be numerically insignificant.

Eligibility for the main interview caused a surprising amount of trouble. The exemptions to the usual criteria, discussed above, were partly responsible; but there were numerous other instances where separated or widowed women, visitors present in the household and women in households containing two or three other eligibles were misclassified as ineligible. On the basis of our experience, we recommend that eligibility rules be made as stark and simple as possible and that the importance of this aspect of field work be continually emphasized during training.

3. Obtaining privacy

Enumerators were firmly instructed to conduct the main interview in complete privacy wherever possible, and detailed suggestions for achieving this were given in page 7 of their manual. Enumerators experienced little trouble with inquisitive husbands and only 7 per cent of interviews were conducted wholely, or partly, in the presence of the spouse. It appears that such explanations as 'this interview concerns women only and is unsuitable for male ears' was an effective means of deterring husbands. A larger proportion (15 per cent) were conducted in the presence of other adults, typically, mothers, mothers-in-law, or sisters. Obviously enumerators found it more difficult to remove female intruders, especially when the respondent herself raised no objections. In a few instances, enumerators, sensing that the persistent presence of a mother-in-law would harm rapport, abandoned the attempt and discreetly discovered a time when the relative would be absent and a successful re-visit could be made.

4. Length of interview

Unlike so many over-ambitious surveys, the Fiji Fertility Survey did not suffer from the

length of its questionnaire and consequent respondent fatigue. It is our impression that most interviews fell within the range of 20 to 60 minutes duration and this time-span includes the household schedule. The mode probably lay between 40 to 50 minutes. Precise figures for interview length were recorded by enumerators on the last page of the questionnaire but unfortunately they are not reliable as many girls did not possess watches and their guesses often appear wild.

5. Embarrassment

Inevitably enumerators found that some questions caused embarrassment. The coitally-related methods of contraception and, in particular, withdrawal, for which a rather explicit description was used in the Fijian and Hindustani translations, were troublesome in this respect. Question 217 – 'For how many months after . . . (name of youngest child) was born did you go without sexual relations?' – proved sensitive for Fijians who have a traditional belief that sexual relations before weaning are harmful. Question 327 – 'Does he use a condom every time or not?', was an equally sensitive question. However, there is no evidence that embarrassment was a major problem and we have on record only four respondents who started the interview but refused to proceed.

Similarly, extreme reticence to answer items concerning dead children, abortions, miscarriages or previous marriages was not widely encountered by enumerators; though, of course, this observation does not imply that these events were fully reported by respondents.

6. Incomprehension of questions

The questionnaire was concerned mainly with the collection of factual items. Only Section 4, Fertility Planning, included questions on desires, intentions and opinions and, not surprisingly, it was in this section that problems of respondent incomprehension were concentrated. Questions 403–406, dealing with attitudes prior to the last pregnancy, were particularly troublesome and these data must be regarded with great caution.

E 'After the birth of [X] (name of penultimate child) did you think to have another child?'
R 'No. I did not think to have another.'
E 'Did you want to have [Y] (name of youngest child)?'
R 'Yes . . . I did want . . . I wanted to have an operation (i.e., sterilization) after [Y].'

E 'No. No. When you gave birth to [X] . . . When [Y] was not born – after giving birth to [X] did you think you wanted to have another baby?'

R 'Yes, I did think about it.'
E 'So you did want [Y] at that time did you?'
R 'Yes.'

(INTERVIEW 01)

E 'Had you thought that you will want another child in the future?'
R 'No.'
E 'Did you want to become pregnant?'
R 'Now? '
E 'With your last baby – did you want to become pregnant to it?'
R 'I did not think of having but I become pregnant.'
E 'Did not think about it? '
R 'No. I had become pregnant, so we wanted to have this child.'
E 'Did you want to become pregnant to your last child – [P]?'
R 'Yes'

(INTERVIEW 25)

These two excerpts from recorded interviews indicate the existence of a number of problems of the communication process.

There is obviously great difficulty with Q.403: 'Had you given any thought to whether you wanted another baby?' The concept of 'given thought to' was often impossible to convey. An identical problem existed with Q.412: 'Have you given any thought to whether you want another baby?'

Further trouble in this sequence of questions was caused by confusion between the past and the present. Respondents tended to think in terms of their current preference, and found it difficult to relate their feelings in the past. A further interesting point, revealed by the second example is that *post facto* reactions to the event of the last pregnancy may differ from *ante facto* feelings and further complicate the situation. To take an extreme case, a woman may not want a pregnancy before it occurs but, nevertheless, welcome it when it happens. In countries where little conscious regulation of conception takes place, it may prove impossible to elicit *ante facto* feelings towards the last pregnancy but nevertheless be feasible to ascertain *post facto* reactions.

In Fiji, where family planning is well established, it would be incorrect to imply that retrospective questions on fertility preferences were totally or largely incomprehensible to all respondents. To redress any imbalance, a further extract from recorded interviews is given below:

E 'After [M] (name of penultimate child) was born, had you given any thought to whether you wanted another baby?'
R 'I didn't believe that I was able to have more children.'
E 'I see – did you want to get pregnant at that particular time – that is, for [N] (name of youngest child) – did you want to get pregnant at that particular time for [N] ?'
R 'No.'
E 'No . . . Did you want a child later or did you want no more children? . . . We are talking about the period after the birth of [M]. Did you want a child later . . . about [N] all right . . . or did you want no more children? '

R 'I didn't want to have any more children.'
E 'How many children did you really want?'
R 'I wanted to have just 5 children.'

(INTERVIEW 30: RESPONDENT HAS 9 LIVING CHILDREN)

In the example above, it is important to note that the enumerator repeatedly pinpoints the relevant time-period by mentioning names of children. It is clear that the time referent, 'Before your pregnancy', is too abstract for respondents to grasp. Identical problems arose with Q.401, 'In the time before your pregnancy, had you and your husband been using any method so that you would not become pregnant?' and Q.402, 'In the interval between your two most recent pregnancies, had you or your husband . . .?' In many cases data from Section 3 of the questionnaire indicated contraceptive use during the relevant time-span but Q.401 and Q.402 were answered negatively. In conclusion, it appears advisable from our experience in Fiji that all questions concerned with past intervals, or points in time, should be phrased so that the interviewer has to mention names of children, or dates of miscarriages or of other salient events.

Similar problems of time referents were noticed in two other places. In Q.413, 'Do you and your husband intend to use any method in the future . . .', the phrase 'in the future' appears to have been interpreted by some respondents as meaning 'in the immediate or near future' or 'before having another baby' rather than the intended meaning 'at any time in the future'. Our reason for this assertion stems from the observation that some women, who claimed to have used contraception without dissatisfaction in the past and had stopped to have another baby, nevertheless answered 'No' to this question. We suspect, therefore, that Q.413 cannot be used with confidence to identify 'hard-core' opposition to family planning.

Whether a similar truncation of time perspective occurred in the more important Q.415, 'Do you want to have another child sometime in the future?' , is impossible to say. However, there was one revealing passage in a recorded interview where the respondent answered this question with a Fijian sentence 'Au manuma me sa kua' which means 'I think I have enough' but does not specify whether she has enough 'for the time being' or 'for always.' The interviewer cleverly spots this ambiguity and by subsequent probing ascertains that the respondent does in fact want two additional children but not for some years. The importance of very careful translation of this and similar questions cannot be over-emphasized. More reliable measures of future preferences could perhaps be obtained by splitting Q.415 into two parts: 'Do you want to have another child in the next few years?' IF NO 'Do you want to have another child at any time in the future?'

The second place in which confusion about time periods undoubtedly has occurred is the sequence of Questions 501–504. Scrutiny and editing of questionnaires revealed an appreciable number of cases where an affirmative answer was given to Q.501, 'Have you at any time in your life done any work which earned you money?' but Q.502–504, 'Did you work . . . before you were first married (502) . . . between the time you were married

and the birth of your first child (503) . . . since the birth of your first child (504)?' were all answered negatively. Re-interviews showed that most errors were caused by misinterpretation of the phrase 'since the birth of your first child' to mean 'in the period shortly after' or 'between the birth of your first and second child' rather that 'at any time since.' For Indian respondents this misunderstanding was largely caused by faulty translation. Instead of the phrase 'ke baad abhi tak' which literally means 'after . . . up till now,' (thus capturing the meaning of the English word 'since') only 'ke baad' was used.

Lengthy questions were frequently misunderstood by respondents. A prime example is Q.409, 'Some couples are unable to have any (more) children, because the wife has reached the menopause or because one of them has been sterilized, or because of some physical or medical problem. Are you and your husband able to have another child?' Here the excessive length of the question, together with a common confusion between 'ability' and 'desire' created much misunderstanding. In the interview quoted below it appears almost as though the respondent was trying to confuse the interviewer!

E 'Some women have operation to prevent becoming pregnant – or some reach their menopause – also they may have some kind of sickness so that they cannot become pregnant. Are you and your husband able to have any more children?'
R 'Yes.'
E 'Will you be using any family planning method in the future?'
R 'No.'
E 'Have you given a thought that you would want another baby or not?'
R 'I cannot have any more children.'
E 'Have you decided?'
R 'Yes, I have decided that I don't want any more children. That's enough.'
E 'You will not use any family planning method in the future?'
R 'The income is not enough – how can I give birth to any more children?'
E 'Since you don't want any more children . . . you also will not use any family planning method?'
R 'I will not be conceiving any more . . . You see the doctor told me . . . I will not have any more children.'

(INTERVIEW 01)

Though questions on fertility preferences were the most prone to misunderstanding, those concerned with work history caused a great deal of trouble:

E 'Have you ever done any work for which you got money?'
R 'With my husband and his business, that's all.'
E 'Do you work with your husband?'
R 'Yes.'
E 'What kind of work is it?'

R 'He is a tailor so I help him.'
E 'Do you get paid for the work you do? '
R 'Yes.'
E 'In other words, you work for money.'
R 'No. He doesn't pay me – we work together . . . not for wages.'
E 'So you both get money – I see.'
R 'Yes.'
E 'Did you work for money before you were married?'
R 'No.'
E 'After your marriage and before the birth of your child – did you ever work for money?'
R 'No.'
E 'After the birth of your first child did you ever work for money?'
R 'No.'

(INTERVIEW 10)

E 'In the past 12 months did your husband do any work which earned him money? '
R 'No.'
E 'Doesn't your husband work?'
R 'He does work, but we cannot save money.'
E 'You can't save money – but he does work – doesn't he get money for the work he does?'
R 'Yes . . . he is a taxi driver.'

(INTERVIEW 16)

E 'All right. Has your husband worked in the past 12 months – for which he got money – does he work at home?'
R 'At the moment he is not doing anything – he does work at home.'
E 'Yes – doesn't he work outside at all?'
R 'Nothing.'
E 'What do you want me to write – that he does work or not – don't you have a farm or the like?'
R 'We have a farm.'
E 'Doesn't your husband work on the farm or does he have employers working for him?'
R 'No, my husband works.'
E 'Oh! So your husband works.'
R 'Yes.'

(INTERVIEW 27)

The three cases quoted above illustrate misunderstanding of the concept of 'working for money'. One respondent takes it to mean a regular wage, another appears to equate it

with financial saving, while the third thinks primarily in terms of an outside job. These problems have been exacerbated by imperceptive interviewing.
The questions concerning type of employment were also widely misunderstood:

E 'Were you self-employed or did you work for some family member or did you work for someone else? '
R 'For myself.'
E 'Who did you work for?'
R 'Someone else.'

(INTERVIEW 03)

E 'Do you work for some member of your family or for someone else or are you self-employed?'
R 'What should be my answer to that question?'
E 'Did you work for someone else?'
R 'Yes, for the Government.'

(INTERVIEW 36)

E 'Does he work for a family member or is he self-employed – or is he working for someone else?'
R 'He works for his children.'
E 'I mean – does he work for his own farm – or is he employed by someone?'
R 'Yes – he works on his own farm.'

(INTERVIEW 23)

It is apparent from recorded interviews that the sequence and phrasing of questions on work history in the Fiji questionnaire could have been greatly improved. For a start, the open-ended questions on occupation should have been positioned earlier, for answers typically would have clarified employment status and place of work. The merit of the employment question which contained three fairly complex alternatives is debatable. It might perhaps have been better to have asked a simple question, such as, 'For whom do you (does he) work?', and then given the interviewer instructions to probe for precise status.
This example raises a point of general importance about the need for, and desirability of, lengthy, highly structured questions which are designed to minimize interviewer variability and to be extremely explicit in their meaning. Although they are satisfying to the logical minds of technical staff, they may, by their very length and complexity, fail to achieve their purpose. In the measurement of certain variables, it may be more efficient to frame simple open-ended questions, followed by probes.
There is further pertinent evidence on this issue from Section 3 on contraceptive methods. Tubal ligation, by far the most common method of female sterilization, is almost universally known amongst Fijians as 'the operation' or 'na sele'. In the excerpt

below, it appears that in Q.304 the worthy attempt to describe the method precisely and unambiguously has succeeded, ironically, only in confusing the respondent by the introduction of less familiar phrases and words. Equivalent examples could also be given for the pill.

E 'Some women have an operation called sterilization such as having their tubes tied in order not to have any more children. Have you heard of this method?'
R 'No.'
E 'Haven't you heard of the operation before?'
R 'Ah! I've heard about the operation.'

(INTERVIEW 35)

After this seemingly intractable problem, it is fitting to end this section in a more lighthearted vein. We quote below two of the more amusing incidents of misunderstanding.

E 'And some women go without sex for a long period to prevent pregnancies. Have you ever heard of this method?'
R 'Oh, they will get pregnant, some of them believe in that but I don't.'

(INTERVIEW 08)

E 'For how long did you feed him at the breast?'
R '8 or 9 months.'
. . . .
E 'After how many months, you had sex relations with your husband after your baby was born?'
R '2 months passed.'
E 'Do you believe that a woman can get pregnant if she feeds her child at breast and has sex relations. What do you think, can she or can't she?'
R 'I have never done this to know of. What questions you ask!'

(INTERVIEW 25)

7. Interviewer expectations and respondent incomprehension

As a prelude to this section, 'listen' to the following excerpts from some of the 36 recorded interviews.

E 'All right, – has your husband worked in the past 12 months, which earned him money?'
R 'No.'
E 'Did he work last year?'
R 'Yes.'
E 'That is what I am asking.'

(INTERVIEW 08)

E 'Did you feed [X] at the breast? '
R 'Yes.'
E 'For how many months did you feed him?'
R 'More than 6 years.'
E 'More than 6 years?'
R 'Yes, he wanted breast-feeding'
E 'You mean you breast fed him for 6 years. Was there any milk? Normally, there is no milk in the breast for 6 years.'
R 'Yes, I breast fed him for 6 years . . . it was more of a habit, so there was some milk.'
E 'For how long did you have milk in your breast?'
R 'I cannot remember too well, but I think there was milk for 2 years.'

(INTERVIEW 10)

E 'Did you feed [Y] – your youngest child at the breast? '
R 'No.'
E 'Did you never feed at the breast?'
R 'No.'
E 'Never . . . not even at the beginning?'
R 'No.'
E 'Not even for a week?'
R 'No.'

(INTERVIEW 21)

E 'Are you and your husband using any family planning methods nowadays?'
R 'No.'
E 'Are you not using anything at present?'
R 'Only that . . . the safe period one.'

(INTERVIEW 10)

E 'Do you think your husband will like to have a child from you in the future?'
R 'No.'
E 'Does not your husband want anymore children in the future?'
R 'Yes.'
E 'How many children in all do you think he really wants?'
R 'Four.'

(INTERVIEW 14: RESPONDENT HAS 2 LIVING CHILDREN)

E 'Do you want another child later on?'
R 'No.'
E 'Don't you want any more?'
R 'No – I am very sick – I become very sick.'

(INTERVIEW 10: RESPONDENT HAS 2 LIVING CHILDREN)

E 'All right, I will ask you something about family planning. The pills or tablets which ladies take daily to prevent pregnancy. Have you heard of this?'
R 'No.'
E 'The family planning pills which ladies takes every night so that they don't get pregnant. Have you heard of these pills?'
R 'Yes, I have heard of that.'

(INTERVIEW 18)

E 'Some women don't have sex with their husbands for months – so that they may not become pregnant – have you heard of this method?'
R 'No.'
E 'Do you understand my question?'
R 'No.'
E 'Some women . . . do not have sex . . . with their husband for months –.'
R 'Yes.'
E 'So that they may not become pregnant. Have you ever done this? I mean have you ever heard of this method? '
R 'Yes.'

(INTERVIEW 06)

These examples have certain similarities. In all cases, the respondent gives an answer which the interviewer is reluctant to accept because it is contrary to her expectations (or possibly because of visual or verbal signals of incomprehension). Typically, the interviewer responds by using a leading probe, though occasionally she simply repeats the question or ascertains in a direct manner whether the question has been understood. The eventual outcome varies. Sometimes, it is clear that the respondent has not grasped the meaning of the question and a correct answer subsequently is obtained. This indicates that misunderstanding of apparently simple questions is common. Sometimes, the respondent has understood the question from the outset and adheres to her initial answer. And on yet other occasions, the respondent has probably been led by the nature of the probes to give a more 'conformist' but incorrect answer.

A fundamental dilemma is raised here about the interviewing process and interviewer training, which is insufficiently appreciated. In the Fiji training course, as in most courses, field staff were trained never to allow their own expectations to influence their reaction to answers but to accept them unless they were ambiguous, unclear, inconsistent or there were signs of hesitation or bewilderment by the respondent. Yet the evidence presented above suggests that these instructions are inappropriate (and disobeyed) in surveys where the general level of immediate comprehension of questions is low.

There is probably no solution to this dilemma. Perhaps the best that can be hoped for is that interviewers are sufficiently well trained and perceptive to distinguish, in the majority of instances, between unlikely but valid answers and answers which reflect incomprehension. Training courses, however, can be improved by an honest admission of these difficulties and even more urgent pleas to trainees to avoid the use of grossly leading probes.

8. Further aspects of interviewer performance and defects in question design

Listening to recorded interviews is usually a sobering experience for those who have been responsible for designing the questionnaire and training field staff. Inevitably one finds examples of all the classic textbook errors: distortion of questions, failure to probe vague answers, simple recording mistakes, leading probes, miscommunication and so on. Enough examples have already been given to indicate that the Fiji Survey is no exception, though it must be remembered that attention has been focussed on defects rather than on the bulk of unblemished interviewing.

To give further examples of interviewer error will serve no purpose; instead it is preferable to examine the pattern of the errors in order to identify general difficulties and specific points at which improvements in question design, or sequence, could have been made. This has already been done in the preceding two sections and there remain only a couple of points worthy of discussion.

It was noticeable that questions with long qualifying statements tended to be shortened by interviewers. The tendency was particularly pronounced in Q.202, 'And how many sons of your own are now living elsewhere? Please include any who have been given away in adoption', and in Q.205. 'Have you given birth to any children who later died? Please include any children who showed any signs of life after.birth, even if they lived only a few hours.' In both cases, the second sentence was frequently omitted and it is clear that this type of two-part question is awkward to deliver and entirely inappropriate. A better tactic would have been to transform the second sentence into a compulsory probe. Thus Q.202 and Q.205 would become respectively:

'And how many sons of your own are now living elsewhere?'
PROBE 'Have any sons been given away for adoption?'

'Have you given birth to any children who later died?'
PROBE 'Were there any who showed any signs of life after birth, even if they only lived a few hours? '

Another feature to emerge from the cassette recordings is the potential harm to rapport that can occur when an interviewer adheres rigidly to the questionnaire even when the answer is perfectly obvious. Q.407, 'Do you currently have a husband?' , provides us with the best example because, by this stage of the interview, marital status had usually been clearly established. In the following excerpt, one can imagine the look of incredulity on the respondent's face at the stupidity of the question:

E 'Do you currently have a husband?'
R 'What?'
E 'Do you currently have a husband?'
R 'What?'
E 'Do you currently have a husband?'
R 'I see . . . Yes.'

(INTERVIEW 29)

A similar lack of flexibility and intelligence by interviewers can occasionally be seen in the use of probes. In the example below, the interviewer elecits an entirely spurious degree of accuracy from the respondent:

E 'After the birth of [X] (born 19 64) your youngest child, how many months passed when you had sex with your husband?'
R 'Oh! About 5 or 6 months.'
E 'Was it more than 5 months or less than 5 months or was it almost 6 months'
E 'Yes, almost 6 months.'

(INTERVIEW 10)

In so far as any single major conclusion can be drawn from these and other excepts from recorded interviews, it is that, however skillfully designed the questionnaire, the ultimate quality of data depends on the ability of interviews to comprehend and internalize the role of research investigators and to play this role with sensitivity and flexibility. No rigid set of rules, however firmly instilled, can compensate for lack of these abilities.

9. Problems of layout and written instructions on the questionnaire

Some aspects of questionnaire design proved troublesome. The instruction between Questions 102-103, 'THE FOLLOWING QUESTIONS RELATE TO THE TOWN/ VILLAGE/SETTLEMENT WHERE THE RESPONDENT USUALLY LIVES', was one such, causing endless confusion and mistakes during training and a few errors during the main enumeration. In Questions 110, 608 and 805, concerning length of tertiary education, the word 'YEAR' misled enumerators on occasions to enter a date rather than number of years. This confusion could have been lessened if the substitute 'NUMBER OF YEARS' had been used.

The crucially important skip instruction following Question 207, 'IF ONE OR MORE CHILDREN EVER BORN, SKIP TO 209. IF NO CHILDREN CONTINUE WITH 208', caused auxiety amongst technical staff during training. But, by the time of the main field work enumerators were sufficiently familiar with the questionnaire to realize their mistake in cases where they incorrectly asked Question 208 of fertile women and no errors were made.

The instruction in Question 213, 'IF UNDER 1 YR. WRITE IN MONTHS: IF OVER 1 YR. WRITE IN YRS', was awkward and created some errors in recording answers. Questions 214-217 referred to length of breast-feeding, amenorrhea and sexual abstinence following the last live birth – regardless of whether the child was alive or dead. This point was repeatedly stressed during training but a tendency to enter the name of youngest living child was observed. Clearly, the phrase 'NAME OF YOUNGEST CHILD' which appears in these questions did nothing to forestall this tendency and should have been substituted by the phrase 'NAME OF MOST RECENT LIVE – BIRTH' or 'NAME OF YOUNGEST CHILD WHETHER LIVING OR DEAD'.

The skip instructions at the start of Section 4 (see below) proved too elaborate and were

the source of frequent mistakes, which luckily were not serious in nature.

(CHECK BACK TO BIRTH AND PREGNANCY HISTORY)
IF NO PREGNANCIES – SKIP TO 407
IF MORE THAN ONE PREGNANCY – SKIP TO 402
IF ONLY ONE PREGNANCY CONTINUE WITH 401

The bland instruction between Questions 602 and 603, 'ASK 603 TO 605 ABOUT CURRENT OR MOST RECENT WORK', was unsatisfactory in the case of husbands who were not currently working, because the enumerator was given no reminder to explain to the respondent that the following questions related to the most recent work done (disregarding minor casual jobs). Moreover, we completely failed to anticipate in the design of the questionnaire, the existence of husbands who had never worked for money but had lived in a subsistence economy all their lives. Last minute instructions on page 67 of the manual were added to cope with possibility.
Question 703, 'How many times have you been married or lived as married altogether?', which is asked both of currently married women who have had more than one marriage and of women who are not currently married, confused enumerators and many recording errors were made. More importantly, Section 8 was frequently omitted and there should have been an instruction at the bottom of page 37 'NOW CONTINUE WITH SECTION 8'.

10. Problems of establishing dates

A central concern of many demographic surveys is the recording of dates: dates of birth of respondent herself, of live-births and of marriage(s). In the Fiji survey, dates of miscarriages and dates of commencement of contraceptive use were also sought.
Fiji is more fortunately placed than most developing countries for it has had a well-established system of birth registration for a long time, which is probably about 90 per cent complete. The presentation of birth certificates is obligatory for children entering primary school. Furthermore, there are no competing calendar systems to confuse the issue.
Enumerators were encouraged to refer to relevant certificates and it is our impression that dates of birth of some or all children were established in this way in perhaps 50 per cent of interviews. In addition, birth dates are sometimes recorded by Fijians on their family Bibles, or even written on the fabric of the building. These sources were also consulted.
Nevertheless, considerable difficulties were experienced. These had been anticipated in the questionnaire design and the following provisions had been made:

a) all respondents were asked for their date of birth and their age. Enumerators were instructed to probe if there was a difference of more than two years. In the analysis, date of birth was used, if available, as the basis for age classification; if a

respondent was unable to give her date of birth, her reported age was used;

b) if the calendar year of a live birth was not remembered, the number of years since that birth was recorded;

c) if the calendar year of an abortion or miscarriage was not remembered, the age of the respondent at that time was recorded.

It should be noted that no similar provisions were made in cases where dates of marriage and commencement of contraceptive practice could not be remembered. In cases of memory lapse concerning these events, the enumerator was expected to probe and estimate the calendar year.

It is debatable whether the provisions in the questionnaire for recording of dates were helpful, even to field staff. The recorded interviews show that interviewers sometimes converted answers expressed in ages or 'years ago' into calendar years before entering them. The reason, we think, is that they found it more convenient to maintain a uniform unit of measurement throughout the questionnaire, so that inconsistencies could be more easily identified. For instance, it is not instantly clear whether two adjacent births, one '19 years ago' and the other in January 1956, are incompatible, or whether a respondent aged 38 could have been married in 1947. It might perhaps have been preferable to have obtained calendar year for all events. This strategy might place a greater initial mental strain on enumerators but would greatly facilitate subsequent checking and editing of questionnaires.

Questions concerning dates were widely dispersed throughout the questionnaire. Respondent's age was collected in Section 1, dates of live-births and miscarriages in Section 2 and marriage dates in Section 7. This arrangement complicated the task of detecting inconsistencies, both for field staff and the editing team. In countries lacking a vital registration system and where great problems of gathering reliable data on the timing of key events are anticipated, there is a strong case for these data to be collected together in temporal sequence, namely, respondent's birth, marriage and live births.

The drawback of this suggestion is the possibility of embarrassment over, or concealment of, pre-marital pregnancies or births in cultures where this phenomenon is sufficiently common to be of importance. However, even in the Fiji survey, where the birth history was separated from the marriage history by four intervening sections and enumerators were instructed to avoid probes concerning the timing of marriage in relation to the timing of the first birth (and vice versa), it is clear from recorded interviews that such probes were employed. It is tempting to conclude that this tendency is inevitable, regardless of questionnaire layout or training instructions.

E 'Do you remember [X]'s (i.e., first live birth) birth date? '
R 'No.'
E 'Don't you remember?'
R 'No.'
E 'All right, please think back carefully. After how many years of your marriage was

[X] born? '

R 'I was married in 1952.'

E 'After marriage . . . one year passed? . . . You were married in 1952 . . . then after one year?'

R 'Yes.'

(INTERVIEW 22)

E 'In what year and month did you start living together with your husband?'NO ANSWER 'You told me that you were already 24 when [Y] (i.e. first live birth) was born, all right?'

R 'Yes.'

E 'All right, [Y] was born in 1954. That means it is probably 1952. All right? '

R 'Yes.'

(INTERVIEW 30)

The table below shows the prevalence of complete, partially completed and missing dates. During de-briefing, field staff indicated that there were no great problems in ascertaining respondent's age or with recent live births. Understandably, greater difficulty was experienced in obtaining dates of miscarriages.

PREVALENCE OF COMPLETE, INCOMPLETE AND MISSING DATES

	EVENT	MONTH & CALENDER YEAR GIVEN %	ONLY CALENDER YEAR GIVEN %	ONLY AGE OR YEARS AGO GIVEN %	NO INFOR-MATION %	NUMBER OF CASES
1.	Respondent's birth	65.5	28.5	3.0	3.0*	5040
2.	First live birth	88.5	9.5	1.9	0.1	4323
3.	Start of first marriage	87.1	12.5	Inform-	0.4	4704
4.	End of first marriage	73.2	24.5	ation not	2.3	640
5.	Miscarriages before first live birth	52.8	43.7	available 0.5	3.0	219
6.	Miscarriages after last live birth	73.8	25.1	0.1	1.0	199
7.	Other miscarriages	60.3	37.5	0.4	1.8	420

* Includes 1 not stated (code 99) and 181 'Don't knows' (code 88).

		MONTH & CALENDER YEAR GIVEN	ONLY CALENDER YEAR GIVEN	ONLY AGE OR YEARS AGO GIVEN	NO INFOR-MATION	NUMBER OF CASES
		%	%	%	%	
8.	Start of pill-use	86.1	13.4	Inform-ation not available	0.5	1516
9.	Start of loop-use	82.8	16.9	"	0.3	793
10.	Start of condom-use	83.9	15.5	"	0.6	802

Details about the use of pill, condom, loop and tubal-ligation, were added to the WFS model to meet Fiji's special requirements. As the final questionnaire was prepared in haste, there was insufficient time to carry out the desirable but delicate task of interlocking questions on the timing of contraceptive use with the maternity and pregnancy history. It is therefore not surprising that difficulties were experienced by enumerators in establishing the dates of starting these particular methods, though they were told to refer back to Section 2 when probing. Recorded interviews confirm that these dates typically were obtained by the probe 'How long after the birth of . . . did you start?'

More relevant to WFS concerns are the problems associated with date of marriage, a key demographic variable. Both reports from enumerators and our impression from completed questionnaires suggest that respondents frequently had difficulty in recalling their dates of marriages. There appear to be several reasons for this uncertainty. First, the event is, for many women, in the distant past. Second, the date of the event is less frequently required in legal, government or other circles than, for instance, date of birth of the respondent, or of her children. Third, many marriages, especially amongst Fijians, are *de facto* unions, at least initially, and hence there is no marriage certificate. Amongst such unions, the date when they first started 'living together' may be difficult to define. Even when a couple possessed a marriage certificate, the latter appears to be less accessible than other certificates, perhaps because of its infrequency of use. Lastly, even when reference to a marriage certificate was possible, further probing was necessary to find out whether commencement of cohabitation occurred at the same time.[1]

11. Detection of live births in section on miscarriages

One of the major purposes of the detailed series of questions on miscarriages and abortions was the detection of live births, which had been omitted from the sub-section on live births. In fact live births were detected in this way in only 46 cases, representing some 50 births. (It is possible that a few additional births were uncovered and added to the live-birth history before the enumerator had entered any answers in the miscarriage section.) As these figures are so small, we must conclude that the detailed treatment of miscarriages in the questionnaire was unjustified from this point of view.

The division of miscarriages into 3 categories – before first live birth, after last live birth

1 Amongst Indians, the legal marriage may procede cohabitation by a significant period of time. Amongst Fijians, the reverse situation is common.

and others – and the separate treatment of each category was intended to increase completeness of reporting. The advantages of this methodology over a single global set of questions unfortunately cannot be ascertained.

12. Recording of live births in correct order

Enumerators were instructed to list live births in order of occurrence, and failing this, to indicate with arrows on the left hand side of page 11 the correct order. Difficulties in obtaining a correctly ordered list were experienced. Frequently, dead children were omitted and had to be added at the end of the list but living children were also sometimes misplaced. Luckily, in the Fiji questionnaire, questions on miscarriages and contraceptive use depended only to a small extent on easy identification of birth intervals so no major problems ensued.

13. Questions designed to detect omissions from previous answers

Two questions were inserted in the questionnaire for the purpose of detecting omissions in answers given to an earlier sequence of answers. Q.207, 'Just to make sure I have this correct, you have a total of . . . living children and . . . children who have died. Is that correct? So you have . . . children altogether', was designed to minimize the possibility of omission of live births from Questions 201 to 206, though it also served as a convenient visual check to the interviewer that she had listed all births on page 11 of the questionnaire.

The second question, 'Please think back carefully. Are you sure you have never used any of these methods?', was asked only of respondents who had denied the use of any method of contraception and was intended to counteract the commonly observed tendency to under-report use.

We have no evidence from perusal of completed questionnaires, or from discussion with field staff, that either question fulfilled its primary function of detecting additional information which had been previously omitted.

V Implementation of Sample Design

1. Introduction

The Fiji Fertility Survey was based on a probability sample of non-institutional households. A two-stage design with stratification at both stages was adopted. The first stage comprised splitting and combining enumeration areas and sub-enumeration areas used in the 1966 Census to give 400 primary sampling units (PSUs) ranging in size from 500 to 2,000 population.

After stratification, exactly 100 PSUs were selected with probability proportionate to size. After listing of households in each selected PSU, a sample of households was drawn from these lists, using a different sampling fraction for each area such that the second stage probability was inversely proportionate to the 1966 population of the PSU. In this way, the sample design was self-weighting and was intended to give approximately 55 selected households in each of the 100 PSUs.

2. Mapping

The boundaries of each sample area were copied from maps used in the 1966 Census onto maps of the same scale (1:50,000). Original coloured maps were used in most cases, but in some areas these maps were not available and we had to use inferior black and white photocopies. The task of copying was carried out by two clerks. Two copies of each map were prepared, one kept at headquarters for reference and the other for use in the field. Photocopying of each sample area map instead of tracing was first considered during the planning stages but since many other EAs and sub-EAs (those not selected) were crowded on the same page, this idea could not be entertained. Furthermore, the map would have come out in black and white print and this would have created difficulties in interpretation.

Aerial photographs of urban areas especially around Suva and Lautoka, were available locally. However, we decided against using these large scale and more up-to-date maps because of their vast differences from the base information (1966 Census maps). To transfer information and boundaries used in the census to more up-to-date serial photographs of the same areas would have required the services of a draftsman for a prolonged period. Instead sketch maps of the area with much larger scale than 1:50,000 (used in the 1966 Census) were used for Suva and Lautoka.

One of the main problems of the tracing exercise was the use of arbitrary lines for boundaries in the Census maps which do not follow natural features such as roads or rivers. This was further complicated by the use of thick felt pens so that lines had been drawn with unequal thickness. It was very hard to determine the point where any two lines should meet. In two cases, new boundaries had been drawn in pencil. The tracers ignored these markings for they thought them to be temporary lines only, but they were later found to

be correct changes in boundaries. These mistakes resulted in the incorrect inclusion in the sample of extra households in both areas. In three other cases, the population of EAs had been split into sub-EAs but no corresponding demarcation was given on the map. As a consequence, two extra sub-EAs were erroneously included in the sample. These mistakes were later corrected by re-weighting the sample and by discarding some 50 households.

Another problem encountered was caused by changes in population of areas since the last census. This meant that in many cases the estimated size used for the sampling of areas was rather different from the actual population of the area; consequently the subsample sizes in these areas differed considerably from the expected size (55 households). This, though by no means a bias, increased the sampling error somewhat and also required re-deployment of the field staff.

The problem became even more pronounced in four areas where the EAs (for which the maps and population figures were available) were excessively large for the purpose of sampling and had to be visually split into smaller areas before being included in the sample. The procedure we adopted was to split large selected EAs into the required number of parts and select one of these parts at random into the sample. Since splitting visually into equal parts was not possible, this procedure resulted in additional variability in the subsample size of the area. A better procedure would have been either to list the whole EA and then select a sample of households (with approximately larger interval, of course), or to estimate, by a quick count of households in the field, the size of the various parts of the EA and use PPS sampling to select one of these parts.

Mapping could have been improved if a more detailed and more up-to-date map were used but, as was discussed earlier, we had no alternative but to use the old map. It would have been better if a supervisor or draftsman had been recruited to look into the problem and be responsible for the entire operation. However, to find a man with such technical qualifications who was free to do the work would have been a hard task in Fiji. It would also be very expensive and time consuming even if we did find one. The survey had been programmed on a very tight schedule and easier and quicker methods of tracing by ordinary clerical staff had to be adopted.

The mapping exercise was carried out without good supervision. The two clerical officers doing the tracing were given practical exercises and close supervision only during the very early stages and were then left on their own to complete the task. No counter checks on maps for each of the 100 sample areas were carried out. If good and thorough checks had been done throughout, the problems that were later encountered in the listing and resulted in errors of sampling could have been avoided.

3. Recruitment of listers

The listing of households was carried out in December 1973 by senior secondary school boys, selected on the recommendation of their principals. The Survey Administrator recruited 100 boys, one for each sample area, choosing them so that they lived in or near the area they were to list. In this way, travel and subsistence costs were minimized. Twelve school teachers were also recruited to act as supervisors.

We decided to use school boys for listing on the following grounds:

a) the task was thought to be relatively simple and well within their capabilities;
b) the time table for listing coincided with the beginning of their long summer holiday;
c) problems of recruitment and wage costs would be minimized;
d) experience in other countries suggested that schoolboys are usually conscientious in carrying out such tasks.

The listers were given $F 15.00 a week in wages for the two week period and supervisors $F 20.00 a week. These rates were below those for enumerators and supervisors for the interviewing phase, who were paid $F 25.00 and $F 30.00 respectively. However, all travelling expenses, including hire of bicycles and horses, were reimbursed, a daily meal allowance $F 0.50 was given and $F 2.00 was payable for each night spent away from home.

In retrospect, we consider that the wages were too low in the case of supervisors, whose normal salaries were much greater. As a consequence, some did not take much care or responsibility in fulfilling their roles. We also suspect that some schoolboys were too young to do the job properly.

4. Training of listers

Listers and their supervisors were trained for one-and-a-half days, immediately after the end of the school term before they had time to disperse to their homes. Training was conducted simultaneously by the four technical and two administrative staff at six regional centres.

The organization and length of training was largely determined by external constraints. The school term ended on a Thursday, leaving Friday and Saturday morning for training. Any extension of the training period would have been unpopular with some boys who had long journeys to their homes and would have considerably increased subsistence payments.

The topics covered during the training course closely followed the contents of the manual, *Instructions to Listers*, which is shown in Appendix 4. Boys were also issued with a Letter of Introduction, an identity card, a map, Daily Record Sheets for recording the number of households listed and expenses incurred, listing booklets and a satchel.

One of the main deficiencies of the listing operation was the inadequate training given to field staff. Almost half of their training period was devoted to administrative matters. Only about three hours were spent on training for the job itself, though boys were expected to read and follow the detailed instructions in their manual. Little time was available to instruct supervisors separately on their duties, though they also received a set of written instructions (see Appendix 4).

More seriously, the half-day allotted for practical training proved to be inadequate. It is now felt that at least two days of field practice should have been given during training. The supervisor, after being properly briefed by the training officer, could have led his

team to list a practice area and their work could have been checked by the training officer in the field. Incidentally, this strategy would have generated more households for use in training interviewers.

5. Timing of the listing operation

Listing was conducted between 10–21 December, a busy period as it was so near Christmas. In choosing this time, the fact that the school term did not end until December 6th had to be taken into account. In addition, training of field staff for the main interviewing phase was scheduled to start in the latter half of January. Therefore, without postponing the whole survey for several weeks, listing had to be completed before Christmas. As it was, there were only two full working weeks between the end of listing and the start of supervisor training in which to select the second stage sample, which was too short for such a large job.

If we had recruited persons other than school boys to do the listing, we probably would have timed the operation for the beginning of December. This would have allowed a more thorough training programme, closer supervision and more careful checking of completed work.

6. Conduct and problems of listing

Boys worked singly rather than in groups, except for a few very large areas where they worked in pairs. They were told to organize listing systematically, proceeding from one locality to another in a logical progression. Each dwelling was to be listed and, if no one was at home, the necessary information was to be obtained from a reliable neighbour. Where information could not be obtained, a blank page was to be left as a reminder to re-visit.

Listers were trained to enter details of each household on a single page (see below) of a specially prepared booklet.[2] On the front side of the page, the name of the head of the household (and father's name in the case of Indians), address and household size were noted. On the reverse side, listers were instructed to indicate the location of the household by words or sketches if they thought that the address by itself might be inadequate. At the completion of listing, booklets were briefly checked and collected by headquarters staff at various pre-arranged centres throughout the country.

2. Booklets were prepared by clerical staff who imposed the layout on each page by means of a rubber stamp – a lengthy and tedious procedure.

PAGE OF LISTING BOOKLET [TO SCALE]

Province _____ Tikina _____
Sample Area No. _____
Name of Head Householder _____

Race _____	No. in Family
Road/Street _____	M
Town/Village _____	F
Settlement	P

Listing booklets were used with the intention of facilitating the selection of the second stage sample. Pages could be easily torn out and rearranged in whatever order we needed. One disadvantage foreseen was that some pages might be lost during the process. However, to avoid this, we ensured that the durability of booklets and thickness of pages were suitable.

Turning now to the main problems encountered, the use of arbitrary lines as boundaries in the Census maps created much trouble. It was a very difficult task to interpret those lines and decide which households to include and which to exclude. This was more so in urban and peri-urban areas where the population was dense. A list of villages and settlements was attached with the sample area maps but this was not much help as many settlements overlapped PSU boundaries.

Another major obstacle to proper listing was the use of the old maps designed and drawn fourteen years ago. The physical layout of areas has changed tremendously with development of new housing estates, factories and roads. The information given on maps was thus out of date and hard to follow.

Inadequate supervision was found to be another deficiency of the listing operation. The unfavourable ratio of one supervisor to twelve listers combined with the fact that sample areas were widely scattered and the work compressed into a fortnight made close supervision impossible. This problem could have been solved by the group working as a team instead of individually, and completing sample areas one by one. In this way, the supervisor could control the work of his team properly all the time. However, it would have been time consuming and expensive and, with a very tight time schedule to follow, it was impracticable. On the other hand, we could have helped supervisors by providing them with the expected population of each their PSUs so that suspicious discrepancies could be promptly investigated.

Fiji, as a developing nation, has not reached the stage where good addresses for dwellings, including house numbers and street names, are prevalent. In some cases, settlements were so dispersed that it was hard to locate each household in the area. This is also true in longer streets in towns where house numbers have not been given. The listers were asked

to sketch or describe the location of 'difficult' households at the back of each page but it was found that many did not follow this instruction perhaps because they had insufficient time. A single large hand-drawn map showing the location of each household would have been a more effective strategy, though additional training in map-drawing would have been necessary. The use of household stickers might have been justified.

Difficulty in identification of the members of selected households was a problem frequently encountered during the survey. Listers were instructed to list the *head* of the households. In some cases the name of the man (or father) and in others the name of the woman (or wife) were given. It was found that there were difficulties in locating households by the use of one name only. It would have been better if names of husband and wife had been given. The task was complicated by cases where persons used their real name during listing but were known by other names amongst the community. Exceedingly common names, especially amongst Indians, further complicated the situation.

7. Concluding comments on listing.

It is clear from the discussion above, that household listing in the Fiji Survey had many defects caused in part by the incorrect assumption of local and technical staff that identification of a household from the name of its head would be easy. In effect, it was done quickly and cheaply and suffered an inevitable loss in quality. But, apart from annoying and time-consuming difficulties in locating selected households in the main interviewing phase and the failure to find 120 households, it is impossible to assess the consequences of these defects on the validity of the sample. Complete re-listing would be necessary for such an assessment.

However, we re-checked carefully the maps of all areas where the listed population deviated by more than 50 per cent from the expected population based on the 1966 Census figures. Errors of mapping were found in five PSUs (see Section 2 above) and in several others there were plausible reasons for the deviation (e.g., large institutional population, new housing estates and recent advent of squatters). In only one area did we conclude the household coverage in the listing operation was defective. Furthermore, the composition of the population enumerated in the household schedule and the number of women eligible for the main interview corresponded closely with the Registrar General's figures. The cost-benefit of more expensive and thorough procedures for household listing must therefore remain speculative.

8. Selection of households in second stage sample

The use of listing booklets facilitated the selection of households for the sample. Pages were easily arranged within races and then by size of households. After the households were selected, they were then re-arranged by villages, settlements, streets or roads before typing in the Household List for each sample area.

The problem faced during the exercise was the time factor. It was too near the training sessions for the supervisors and enumerators which were then followed by the main field work. After selection of households from ordered lists by a technical officer, the tasks of

rearrangement and typing were left to the clerical staff working under the assistant administrative officer, with little further technical supervision. As a result, 35 selected households were inadvertantly omitted from typed lists and this serious error was not discovered until after the end of field work. It could have been avoided if the technical officer responsible for the selection had been available throughout and had checked his figures of sample size against the number typed on Household Lists.

For the field work, supervisors were issued with the original pages from listing booklets as well as typed Sample Household Lists. Unfortunately the pages contained two numbers: one being the identification number of the household and the other indicating the order in which it had been listed. During the early stages of field work, there was considerable confusion between the two numbers, with the result that many completed questionnaires posed problems of identification to the editing staff.

On balance, we think that the use of listing booklets, with a separate page for each household, caused as many problems as it solved. It was naive of us to imagine that listers would take the trouble to draw many individual sketch maps on the reverse sides of pages and we had an exaggerated view of the difficulties of re-arranging households in order of size prior to second stage sampling from more conventional large listing sheets.

VI Organization of Field Work

1. The model

Field work organization was determined by a number of factors. First, the sample size of 5,000 and time allotted for the main interviewing phase (6–8 weeks) necessitated a substantial field force. Second, the majority of recruits, especially housewives and Indian ladies, were unwilling to work away from home for more than a few days, so mobility of staff was restricted. Third, it was essential that respondents be interviewed in their mother-tongue and clearly desirable that, wherever possible, enumerators should be supervised by someone speaking the same language. And lastly, security, ease of supervision and morale indicated working in teams rather than singly was preferable.

These considerations led us to the following basic plan. Most enumerators would work in the district where they lived, so that they could return home each night. Those expressing a willingness to live anywhere, or in specified places only, would be allocated to strengthen weak spots. The basic unit of organization would be small teams working under a supervisor and, to avoid over-burdening supervisors, the maximum size of a team would be 5 enumerators.

2. Adapting the model to reality

Inevitably the model had to be adapted to meet geographical and other constraints. Due to high costs, both in terms of finance and time of travel to outlying islands of the Fiji group and to the rugged interiors of the main islands, it was not feasible to maintain the team structure throughout. Two examples will illustrate this point: One sample area containing 48 selected households was on the island of Kadavu, an 8-hour boat ride from Suva. The cost of a return passage was $F18. To have sent a full team would have made the cost per completed interview exorbitantly high. Furthermore, shipping was irregular with the possibility of being stranded for several days in a place where there was no accommodation, except at the invitation of villagers. The arguments for sending one or two enumerators rather than a full team were thus overwhelming.

The second example concerns a very large, thinly populated sample area in the centre of Viti Levu. It takes more than a day by river boat and foot to reach the area, and sample households were scattered amongst villages, several hours walk apart from each other. To have sent a full team to this area would have been an absurdity.

Accordingly, some enumerators had to work in pairs or singly. The problem of lack of supervision was alleviated in two ways. First, we chose a handful of senior enumerators who acted as leaders of pairs and whose duties were a mixture of those of supervisor and of enumerator. Second, we retained at headquarters 4 mobile supervisors who were required to make field visits to otherwise unsupervised enumerators.

The table below shows the distribution of field staff by size of team and by presence of a supervisor.

NO. OF ENUMERATORS IN TEAMS	NO. OF 8 TEAMS SUPERVISED BY TEAM SUPERVISOR	SUPERVISED ONLY FROM HEADQUARTERS
1	–	2
2	2	4
3	7	2
4	6	–
5	1	–

A total of 54 enumerators worked in supervised teams, and 16 worked without a supervisor. The presence of two large 'unsupervised' groups comprising three persons each requires explanation. In one case, the cause was the dismissal of a supervisor during the enumerator training course and the lack of a suitable alternative. Luckily, the district was only an hour from Suva and therefore became the responsibility of the mobile' supervisors. In the second case, the sample area was also near Suva and, as no obvious candidate for the supervisor post emerged during recruitment, it was decided to supervise from headquarters.

Of the two women working singly, one was a specially recruited Banaban enumerator, while the other worked on her island of residence for the first half of field work but was subsequently reinforced by three other enumarators.

There is an obvious risk in allowing interviewing to proceed without constant supervision. However, we ensured that only the more competent women worked for any length of time in this way and took the additional precaution of insisting that the first week of field work was spent with a properly supervised team. These safeguards proved adequate and, with the exception of the Banaban sample area, we are satisfied that standards were not adversely affected by lack of supervision.

In more densely populated areas, it was possible to create separate Indian and Fijian teams, but elsewhere teams were mixed. Of the 16 supervised teams, nine were composed of one race only. The existence of mixed teams created additional problems of supervision, for an Indian supervisor could not conduct spot-checks on Fijian interviews, deal with Fijian refusals or discuss linguistic problems with Fijian staff, and vice versa. The problem was solved by visits from adjacent team supervisors of appropriate race. And in the Western Division, a special mobile Fijian supervisor was appointed to assist with the supervision of Fijian enumerators in four predominantly Indian teams.

One general feature of field work organization was the deployment of most staff in their areas of residence. It is often asserted that this is an unsatisfactory arrangement, for enumerators, on occasion, may interview their friends and acquaintances, thus making claims of confidentiality somewhat dubious. In the Fiji survey, there was little choice, but we found no evidence of serious consequences. During training, we instructed staff to avoid interviewing their own friends and we presume that this advice was heeded.

3. Preparation of a written deployment plan

In a survey of this magnitude, it was essential to produce a deployment plan, detailing the composition of each team and the sample areas for which they were responsible. The apparent simplicity of this task is deceptive. For example, we did not know the final sample size or racial composition of each area until the second stage sampling was completed half way through supervisor training. Therefore, details had to be drafted in considerable haste so as to be ready for the last week of enumerator training.

The plan proved invaluable in the latter stages of training, for it enabled supervisors to identify and pay particular attention to the probable members of their teams, to familiarize themselves with their sample areas and to plan field work strategy. Two illustrative pages are shown in Appendix 9.

There was one final complication, because in drafting the plan we had to assume that all trainees would be accepted for the job of interviewing. In fact, 4 were dismissed as unsuitable, and last minute changes are necessary. It should be noted that, in surveys which recruit a large surplus of trainees, formulation of teams before the end of training will be impossible.

We adhered to the Deployment Plan for most of the field work but, towards the end, considerable logistical flexibility was needed, for not all teams finished at the same time. Some early finishers were employed as coders, other re-deployed to assist teams lagging behind and yet others paid off.

4. Length of field work

It was originally thought that field work would last 5 to 6 weeks but for a variety of reasons – bad weather, slight under-staffing in some regions and delays caused by re-interviewing – the period was extended to an average of 8 weeks. We would have found it difficult to maintain a full field force for longer. As it was, 3 women had reached advanced stages of pregnancy, several had experienced domestic changes such as re-posting of their husbands and a few others were suffering from fatigue or declining morale by the end of 8 weeks.

On the basis of our experience, we would suggest that, in tropical and sub-tropical conditions, field work should be phased to last not longer than 10 weeks for it is an extremely demanding and tiring job. In Fiji, it was noticeable that many enumerators lost weight appreciably and others complained of exhaustion. The arguments for brevity are strengthened when the majority of enumerators are housewives whose husbands and children may resent prolonged neglect.

5. Pattern of work

Although enumerators were expected to work at least 6 hours a day for 5 days a week, the working pattern was left to the discretion of supervisors. While we did not expect girls to work during heavy rain, we hoped that they would make up for time lost in such ways by working longer hours on other days. Conversely, when they worked at weekends or in the evenings, they were allowed to take time off as compensation. No overtime money

was paid at any stage of field work.

The typical daily pattern was for a team to meet at a central place at about 8.00 a.m. Some form of office accommodation was found by most supervisors – in the District Administration Headquarters, Social Welfare Office, Church Hall or a private residence. Here, any completed questionnaires not already handed in were submitted, new households were allocated and problems of non-contact and refusal discussed. The team, usually accompanied by the supervisor, then travelled to their sample area where they worked until 3.00 to 4.00 p.m. They then returned home singly or in a group.

Many variations from this typical pattern were observed, mostly in the form of sensible adjustments to minimize inconvenience and travelling time. However, it was noticeable that meetings with the whole team usually took place in the morning. Afternoon sessions were unpopular because enumerators were tired and anxious to return home as quickly as possible.

The number of sample areas and households allocated to each team varied with the size of the team and the nature of the terrain. Most rural teams had 4 to 6 areas to cover while in Suva and its suburbs, teams were allocated 12 or more sample areas (but only interviewed women of their own race). The order in which areas were taken was left largely to the discretion of the supervisor, though we insisted that the first week should be spent in an accessible district to facilitate supervision and communication of problems. For obvious reasons we also tried to ensure that remote areas were not left to the end. As we anticipated the necessity for re-interviewing, we did not expect each area to be totally completed before interviewing in the next area began. Households temporarily absent or away from home were put to one side for further attempts towards the end of the survey. These remarks, however, do not apply to less accessible areas where the cost of revisits would have been too high.

It is sometimes suggested that it is dangerous to undertake interviewing in an area over a prolonged time, because of 'contamination' of the sample and the possibility of the growth of hostility or resistance. Instead, it is claimed, each area should be completed in the shortest possible time before proceeding to the next area. Because of the limited mobility of our field force and the existence of two distinct linguistic communities, such a policy would have been very difficult to implement in Fiji. Moreover, since family planning is not a divisive issue and because civil unrest is not a problem, no difficulties of the sort mentioned above were anticipated, nor did any occur.

6. Locating and contacting households

The inadequacies of the household listing operation have already been described, and, in view of these, it is not surprising that considerable difficulty in locating households was experienced in some areas, notably peri-urban districts with no street names and house numbers, and with a mobile population. The existence of aliases, nicknames and extremely common names further complicated matters, particularly amongst Indians. Despite a great deal of effort by enumerators and supervisors, a total of 120 households remained untraced.

Once the correct dwelling had been located, contacting the household was relatively simple for, even if none was at home, neighbours could usually supply information concerning their whereabouts. In the case of non-contacts, enumerators were instructed to call back at least three times, unless there was firm evidence that the household would be away for the whole duration of the survey. In formulating this rule, we realized that it could never be rigidly applied, for the geographical contraints of a largely rural, developing country simply do not permit it, except at enormous cost. In inaccessible areas, one call-back was a maximum and even this was often impracticable. Although from the point of view of sampling theory, attempts to contact each household should be made with equal intensity, such a policy is totally unfeasible. A further problem is the difficulty in formulating a precise definition of a call-back. If the enumerator is told that a family in a selected dwelling two miles further up the track is still away, can this count as a 'call-back'?

7. Establishing identity and cooperation

The publicity given to the survey and the very low refusal rate are described elsewhere. Nevertheless, the enumerators had to contend with some suspicions and misconceptions concerning the purpose of their visits. Serious problems in this respect were only encountered in a few peri-urban areas noted for their concentration of illegal squatters, who feared that enumeration was a first step in a process leading to eventual eviction. Other common misconceptions included the beliefs that enumerators were selling goods or offering salvation. A patient explanation, and presentation of the identity card in a very small minority of cases, proved sufficient to overcome these fears and we have on record very few instances where field staff had to rely on the persuasive powers of survey technical staff or district officials to obtain compliance of householders. We would conclude therefore that further publicity on the radio and in the press might have paid dividends but any gain would have been slight.

Before the main field work, we anticipated that some Indian women would be reluctant to answer questions until their husbands had given permission. As many men would be away from home during the day, this would have been a major inconvenience. These fears proved groundless.

Another worry was that gossip about the content of the questionnaire would reduce cooperation. Though a few isolated incidents – one in particular where a husband had heard of, and objected to, questions on certain contraceptive methods – were reported, this problem appears to have been insignificant.

8. Travel and subsistence arrangements

The most surprising and disagreeable aspect of field work to the enumerators was the amount of walking involved. This was especially felt by those working in rural Indian areas, where the pattern of settlement is scattered dwellings linked by tracks that are alternatively dusty and muddy. Rural Fijians, in contrast, live in compact villages.

These difficulties were made worse by problems of locating households. Understandably, field workers became disheartened and angry after prolonged and tiring efforts to identify

sample households. The consequences of poor listing must therefore include not only the 2.2 per cent of households that could not be found but also the time and energy wasted in tracking down inadequate addresses.

Field staff were not allowed to use taxis except in special circumstances that had to be justified to headquarters staff. Hire of motor-driven punts was however frequently necessary both to penetrate the interior of the main islands and to cover coastal villages. Three supervisors had family cars which they were encouraged to use at the official Government mileage allowance. Substantial help was given in some areas by various Government Departments who lent landrovers. In one area, a landrover and a driver were made available at reduced cost for the use of two teams.

Rural travel in Fiji during the rainy season can be an exciting experience, and sea trips in small boats always have an element of risk. We were fortunate to avoid mishaps though we had a full share of outboard engines that refused to start, flooded rivers that had to be swum and choppy seas that caused alarm. The spirit with which girls braved these conditions commanded our respect and admiration.

Fiji is conspicuously lacking in cheap hotels and government rest houses. Instead there is an increasing abundance of expensive coastal hotels, catering to the tourist trade. However, this deficiency did not affect the cost of field work as much as might be expected. Most Indians live in towns, coastal strips or in flat, accessible sugar cane areas. With few exceptions, therefore, Indian field staff could return home each evening.

The small outer islands and the inaccessible interiors of the main islands are inhabited almost exclusively by Fijians. Here, of course, field staff had to live away from home for days and even weeks at a stretch. Fortunately, Fijians are extremely hospitable to visitors and were prepared to house and feed the field staff. Apart from the obligatory presentation of a 'Sevusevu', a ceremonial gift of the roots of a shrub which are pounded and then mixed with water for drinking, enumerators usually responded to hospitality by gifts of tinned food or tobacco.

For each night spent away from home, a fixed sum of $F2.00 was allowed to cover food expenses and gifts. Staff were also allowed to claim refunds for purchase of 'Sevusevu'.

Hotels were used in special circumstances and, in these instances, actual out-of-pocket expenses were re-imbursed.

These claims, together with travel costs, were entered on a weekly 'Travel and Cost Record' which was first checked by the supervisor and then sent to headquarters for verification by administrative staff. Headquarters control of such financial matters was desirable but the inevitable delays in reimbursement caused resentment amongst staff. It should be noted that prompt payment of salaries and expenses are essential to the morale of a field force.

On occasions when a prolonged trip was anticipated, supervisors sought and received accountable cash advances.

9. Duties and performance of team supervisors

The duties of team supervisors are described at length in *The Supervisors' Addendum to*

the Instruction Manual which is shown in Appendix 3. In brief they were:

a) assignment of work-load to enumerators
b) scrutiny of completed questionnaires
c) quality control by spot-checks
d) assisting with refusals and failure to locate households
e) making travel and subsistence arrangements
f) maintaining adequate supply of all forms, etc.
g) completion and forwarding of field control forms
h) maintaining constant communication with headquarters

This formidable list of duties illustrates the key role of supervisors in the field operation. They, more than any other factor, determine the standard of field work. In the Fiji survey, the quality of supervisors varied markedly with concommitant variations in the proportion of faulty questionnaires received at headquarters and the completeness of sample documentation.

The more important supervisor duties (scrutiny of questionnaires, spot-checks and field documentation) will be analysed in detail later in this report. This section will be confined to a general discussion of the role of supervisor.

As supervisors kept no detailed diaries, it is impossible to ascertain what proportion of their time was spent on the different aspects of their job. During training, we had specified no rigid rules but suggested that they spend at least half their time in the field with enumerators. Supervisors of smaller teams were also expected to conduct interviews themselves. Judging from the number of interviews done by supervisors and from other impressions, we consider that supervisors tended to spend too much time in the field, leaving insufficient time and energy for methodical checking of questionnaires and careful documentation of each sample household. We suspect that supervisors found that they could only command respect and keep morale high if they shouldered an equal share of field work. No doubt the fact that many supervisors were younger than some of their team members contributed to this feeling. A system involving two supervisors per team obviously could circumvent this problem, though field costs would rise.

Inevitably tension and dissatisfaction between supervisors and enumerators occasionally surfaced. This was mainly confined to teams where the supervisor was clearly less competent than some of their subordinate staff. However, these difficulties never became severe enough to justify dismissal or redeployment of staff.

Though we were far from satisfied with the work of some supervisors, we do not consider that their burden of work was excessive, for the majority of teams comprised only 3 or 4 enumerators. The causes for the disappointing performance of some of them must be sought in the difficulty of assessing candidates during recruitment, failure to lay sufficient stress on certain facets of survey procedures during training, mismanagement of their time, carelessness and general lack of competence.

10. Role of mobile supervisors

The four mobile supervisors, based at headquarters, proved to be an invaluable asset. They were used in many ways: to supervise enumerators without their own team supervisor, to assist team supervisors who appeared to be falling behind in their duties, to carry supplies to the field and to bring back completed questionnaires.

They were also available to lead teams to certain more isolated areas where 'crash coverage' – completion of all interviewing with a large team in a short time – was considered expedient. In short, they provided the flexibility and reserve resources which we would suggest are necessary for most large sample surveys where unforeseeable difficulties are bound to arise.

11. Technical supervision

In the Fiji Survey, where supervisors were of varying calibre, constant technical supervision was vital. There were 5 technical officers for the whole of the main interviewing phase and, had they been able to devote themselves full time to field work, their efforts probably would have been adequate. However other commitments, such as training of editors, design of the coding plan and investigation of apparent defects in mapping and listing intervened to distract them.

In assessing the amount of technical supervision required at this stage of a survey, the interviewing must be seen in its proper perspective; namely, a short, intense burst of activity preceded by months of preparation and followed by months of orderly analysis. Any deficiency at this stage can never be fully rectified and may jeopardize the quality of the whole survey. Our experience suggests two things: first, that it is difficult to have too much technical supervision and second, that distraction by other duties should be kept to a minimum.

All technical officers including the National Director met at least once a week in Suva to discuss problems and ways of improving the field work. At these meetings, timing and location of field trips for the coming week were co-ordinated. Trips were arranged so that regions were visited by different staff, for we hoped to ensure uniformity of approach and equality of standards by this approach. The advantages of this over the alternative strategy of giving each technical officer a regional responsibility are debatable.

Supervision of the Suva based teams was no problem for they were in constant touch with headquarters. Elsewhere, our aim was to visit each team once a week. Inevitably this proved impossible although all the larger teams were visited with this frequency.

The nature and achievements of field visits varied considerably and are best illustrated by describing in diary form two examples:

EXAMPLE 1

'Took the last flight from Suva to Nadi.

Picked up the rental car at the airport and drove to Lautoka for the night. Collected mobile Fijian supervisor for the Western Division and drove to Rakiraki next morning.

Arrived at 10.00 a.m. to find the supervisor awaiting at the District Officer's Headquarters as arranged. Enumerators had already left for the field. Discussed general progress and the problem of accommodation for one sample area about 20 miles up the main road. Supervisor thought she could arrange this through the Fijian Administration. All but one enumerator were prepared to spend a few nights away from home. Supervisor complained that 2 Indian enumerators were not willingly obeying instructions. Promised to send Indian supervisor from Tavua to sort things out and do some spot-checks. Spent next 2 hours scrutinizing about 30 completed questionnaires. Eight contained serious errors and were left with supervisor for discussion with enumerators and possible re-interviews. Told her to take great care with scrutiny.

Drove to Tavua, and met supervisor at Social Welfare Office as arranged. Her only complaint is great distances to be walked, sometimes 3–4 hours to reach a single household. Bus services are poor in this area. Went together to see whether Sub-Divisional Medical Officer could help with a landrover. He said he would help where possible by giving lifts but naturally medical services must come first. Supervisor worried that her team would not complete area within 6–7 weeks. Assured her that, if other teams finished earlier, we would strengthen her team.

Spent the evening scrutinizing some 30 out of a total of 40 completed questionnaires. Six rejected for errors. In the morning met the enumerators for brief discussion. Arranged that supervisor would travel to Rakiraki next day and spend 2 days there. Meanwhile mobile Fijian supervisor would remain in Tavua to do some spot-checks on 2 Fijian enumerators. As in Rakiraki, checked that there were adequate supplies of questionnaires etc. before leaving and collected Travel and Cost Records.

Reached Ba at 10.30 a.m. and found the supervisor at District Administration Headquarters, where she has been given a desk and cupboard. She complained at length about the difficulty of locating households in the town area. To her credit, she had sought the help of the local police force who were able to identify some names. Promised to telephone her the names of the lister and his supervisor who should be able to help further. As enumerators were working close by, we drove to see them in the field. Noticed that the two young girls, cousins, worked as a pair. One would wait at the house while the other interviewed. Told them that this was time-wasting and unnecessary. Later, asked supervisor to report to Headquarters on subsequent behaviour of these 2 girls.

The husband of one enumerator has helped considerably by driving team in his car. But, with the recent increase in price of petrol, he is reluctant to continue to do so unless mileage rate is increased. Agreed to discuss this in Suva and let her know the outcome.

Supervisor lives 8 miles out of Ba and is finding the bus service inadequate. Gave her permission to hire a taxi if in difficulties and reminded her to obtain a receipt for each journey.

Had time to scrutinize only about 10 questionnaires out of 25 before leaving for Lautoka.

Arrived at the survey office at 4.30 p.m. to find both supervisors and 3 enumerators there. Remaining enumerators had gone straight home from the field. Discussed progress with them for about 45 minutes. Supervisors said that they were worried about one Fijian

enumerator whose allocated households contained surprisingly few eligible women. Left instruction for mobile Fijian supervisor to carry out field checks on her return to Lautoka. Otherwise smooth progress in Lautoka region. The 2 supervisors have come to the sensible arrangement that one stays in the office to answer the telephone and check questionnaires while the other spends the day in the field.
Field staff left shortly after 5.00 p.m. Spent the next 2 hours scrutinizing questionnaires. Detected several serious errors, unspotted by supervisors. Left these with a note on the desk and took the rest with me. Had a meal and then drove to the airport for the last flight to Suva.'

EXAMPLE 2
'Accompanied by 2 enumerators, took the bus from Suva to Navua, where we caught a boat to Beqa. The sea was rough and we were all wet by the time we reached the village of Dakuni. We spent the whole afternoon and early evening at a reception organized by the village chief. Interviewing started at 8.00 p.m. but was interrupted by the church bell calling everyone to prayer. Interviewing was re-started after the service and completed at 10.00 p.m. Observed the completion of household schedules but absented myself from main interviews. Scrutinized the questionnaires which were correct, apart from a few minor details.
The following morning, we set off for another village but all sample households had shifted to the mainland. At the next village one interview was successfully completed and 3 re-interviews of faulty questionnaires from the first Beqa visit were done. At the same village, 7 household schedules had been completed on the first visit but all the wives had been absent. The enumerators suggested that these same 7 women be interviewed now as they had returned; and I had to explain to them that these women were not eligible for interview.
We then returned to Navua by the same boat. This visit completes work on Beqa and, unless any serious errors are detected in editing, there should be no need to re-visit the island.'

These two examples represent opposite ends of the spectrum of ways in which technical supervision was exercised. In the first instance, 5 teams were visited in 2 days. Monitoring of progress was inevitably superficial though a number of important practical decisions were taken. In the second instance, a technical officer visited an island to clear up 'loose ends' left from the first visit, thereby ensuring that no further visits would be necessary. On this occasion, the work of enumerators could be observed in greater depth and detail.

12. Communication and supplies

The role of technical officers and mobile supervisors in communications and supply has already been well illustrated. Delivery of supplies and receipt of questionnaires by hand was much more prompt and efficient than by mail. The latter was used quite frequently

for salary payments but only on rare occasions for other needs. Work was never seriously hindered for lack of supplies.
Storage of stationery and the various documents by supervisors was either in the office which they were using or at their own homes. We considered issuing each supervisor with a suitcase for holding completed questionnaires but decided against it. No instance of unauthorised people seeing completed questionnaires was reported to us, although some were lost (see Chapter VIII).
Apart from personal visits, communication between field staff and headquarters was maintained by telephone. We ensured that at least one technical officer was in Suva at all times, and supervisors were instructed to telephone at least once a week to report on progress and problems.

13. Field documentation

Field control documentation was kept to a bare minimum for we had the impression that in many surveys, field staff are over-burdened with record keeping that has little practical or research value. Only three documents were used: an Interview Record Sheet (see back page of *Enumerators' Manual* for a specimen, reduced in size) a Sample Household List, and a Supervisors' Weekly record (see *Supervisors' Addendum*).
The Interview Record Sheet was used by enumerators to record details and outcome of each visit to a household. Detailed instructions for completing it may be found on page 75 of the manual.
This document was unsatisfactory in several ways: It was large and clumsy to handle in the field. It was detached and therefore easy to loose. We observed that many enumerators did not make entries throughout the day as instructed but merely filled it in each evening, or at the end of a couple of days work.
The system of classification and set of abbreviations used to describe the outcome of each visit were not clearly understood by all enumerators, who confused NAH (not at home), UIP (house unoccupied for indefinite period) and AWAY (household members away, e.g., on holiday). Not infrequently, enumerators described the final outcome in an ambiguous way such as 'not staying here anymore'.Such cases had to be referred back to the field to establish whether the dwelling was vacant or whether a new family had moved in. Clearly, training should have been more thorough on this aspect of the survey procedure.
A further defect lay in the fact that many sheets were not received at headquarters until the end of the field work. They were therefore of limited use in assisting the editing team tackle problems of incorrect identification numbers, dubious eligibility, etc.
Furthermore, some of the remarks on the sheets would have been of great assistance in deciding whether to ask for a re-interview or not. On finding such entries as 'the woman is mentally sub-normal' or 'I had to walk 4 hours to reach this household', one is reluctant to insist upon a revisit to correct errors!
At the final count, only 4,838 or 89 per cent out of the total of 5,454 households were entered on Interview Record Sheets that were received at headquarters. The balance presumably represents both loss and incomplete recording.

In the light of difficulties described above, the alternative strategy of using the front page of the questionnaire to record details and outcome of each visit appears attractive. Although wasteful in terms of printing, it would allow all the pertinent information about an interview to be contained in one document. Details of 'failures' would also tend to flow in to headquarters more rapidly, allowing greater scrutiny of field work progress. Furthermore, data for all households (failures and successes) and each eligible woman, could be presented for coding and punching, thus facilitating the estimation of response rates.

However, with a field strategy similar to Fiji's, problems would remain. It seems to us unlikely that enumerators would willingly suffer the inconvenience of carrying around a pile of questionnaires containing the outcome of an unsuccessful first visit. Rather they would use a notebook or memory and only complete the first page of the questionnaire at a successful contact. Further complications would arise if a sample area was left for several weeks before a final 'tidying up' phase.

A possible compromise might be to have a detachable front page to the questionnaire which would be stapled to the body of the document in cases of successful contact but retained in a folder in other cases.

Turning now to the Sample Household List, we are again not entirely happy with its design.[3] It should have included columns on which to record the final outcome of the household and the main interviews instead of a single 'remarks' column to cover all types of failure. Space in which to record re-visits to correct faulty information should have been provided. And finally, the date and mode of delivery to headquarters should have been specified.

Bearing in mind that the Sample Household List, like the Interview Record Sheet, was a composite document covering both households and eligible women (separate forms would have been administratively inconvenient), these additions would have made the record rather complex. But they would have made the task of accounting for all households at the end of field work much quicker and easier.

Most supervisors completed Sample Household Lists adequately, although we experienced some annoying delays before the lists were submitted to headquarters. However, one supervisor kept such incomplete records that they were almost worthless and another set were lost on transit to Suva. The combination of mishap and irresponsibility in submitting field documents together with incompleteness of Interview Record Sheets, made it impossible for the reasons for non-response to be ascertained in some cases (see also Chapter VIII).

The third field control document, the Supervisors' Weekly Record, was made redundant by the shortness of the interviewing phase and the frequency of contact between technical staff and supervisors. It proved more effective to monitor progress of all aspects of field work by personal discussion with field staff and by examniation of other field control forms than by means of a written weekly submission. We suspect that detailed weekly reports only become useful tools of management and justify the time and effort entailed when interviewing teams are large, field work lengthy, or communication with technical staff remote; in other words, when field work becomes, of necessity or by choice, bureaucratic.

3 It may also be of passing interest to note that we had technical problems in producing these lists. The specimen in the *Supervisors' Addendum* is merely the skeleton that was first run off from a stencil. Onto this, the list of names and address for each area had to be superimposed by means of another stencil. With an antiquated machine, it was not easy to obtain correct layout and many long hours were spent during enumerator training to prepare lists in time for the start of field work.

14. Field checks on quality of enumerators' work

However rigorous the training, it is desirable to spot-check the performance of enumerators during field work so that any systematic errors can be identified and corrected before major damage is done. There are a number of alternatives in implementing a scheme of field checks:

a) Who should carry out the checks: the team supervisor or an independent person?
b) What should be checked: identification of the correct household and eligible women, some or all of the questions in the schedule or questionnaire?
c) Precisely how should the check be conducted: on a separate document or by mental comparison of answers with enumerator's completed questionnaire?
d) Approximately how many checks should be made?
e) How should households for checking be selected: on a random system or at the discretion of technical officers and supervisors?

In the Fiji survey, the decisions were as follows. First, it was decided that the creation of a team of independent field checkers would be too expensive, especially in travel costs, and might create resentment amongst team supervisors. The latter therefore were chosen to conduct the checks together with mobile supervisors.

As to the scope of the check, we came to a compromise. Merely to confirm that the correct household had been visited would be an inefficient use of the supervisor's time for we expected very few cases of deliberate cheating or genuine mistake in this respect. On the other hand, a complete re-interview would be too great a burden on the supervisor, and, in any case, differences in many answers might be caused by respondent rather than enumerator 'error' and would thus be difficult to interpret. So we decided that the check should consist of a repetition of the household schedule, which would cover the important topics of eligibility, a fertility summary for all women over 15 years, and ages of all household members.

In conducting a check, supervisors were instructed to take with them the completed questionnaires. They were also trained to take a detached household schedule form (the same stock that had been used in training), to complete this, to compare the old and new schedules and to probe to solve discrepancies. If there were no serious errors detected, the detached schedule should be stapled onto the questionnaire and both submitted to headquarters. In the case of major errors, a complete re-interview on a fresh questionnaire should be done and both old and new questionnaire submitted.

However, due to a slight disagreement amongst technical staff, the instruction to fill in a new household schedule was not systematically enforced. Instead some supervisors were told to make a mental comparison between answers given to them and the written response given earlier. As a consequence, we received household schedules for only 40 per cent of all checks. This has made analysis of the usefulness of checks difficult.

In choosing households to be checked, there was also a compromise. Checking, we considered, should be guided partly by considerations of management. Therefore we asked

supervisors to conduct 2 spot-checks on each member of their team within the first week so that systematic errors would be detected early in the field work. They were also expected to concentrate further checks on weak enumerators or in any suspicious circumstances. A total of 125 checks of this kind were made. But we did not wish to leave the choice of households entirely to supervisors for they would inevitably tend to pick the less complicated and the more accessible ones. We therefore selected at random a small sample of 226 households from 80 areas (20 remote ones were excluded), which we instructed supervisors to check wherever possible. Our records show that only 106 or 45 per cent of these random households were checked, though the loss and incompleteness of some Sample Household Lists, together with the minority of these households that were never successfully contacted by enumerators, partially account for this low proportion. Nevertheless, it is clear that supervisors found this aspect of their duties tiresome and failed to carry it out thoroughly.

Including both random and supervisor-selected checks, the records show that 228 checks were done. Assessment of these checks is diffficult not only because separate household schedules were received for only 93, but also because our reporting system was meagre. On Sample Household Lists, supervisors were instructed merely to enter the date of each spot-check. The Remarks Column was sometimes, but not always, used to comment on the outcome of the check. In the absence of a household schedule and of any remarks on supervisor's lists to the contrary, we have had to assume that the check revealed no error. A further complicating factor was the tendency of supervisors to blur the distinction between spot-checks and their other functions. It is clear for instance that in some cases they combined the functions of re-visiting to correct a faulty questionnaire, or of locating a household which the enumerator could not find with spot-checking. Further, it seems that some so-called checks consisted of listening to an interview conducted by an enumerator: a tactic which is appropriate for detecting unconscious errors but not deliberate deviations from correct procedures.

Despite these reservations about analysis of spot-checks, it seems that few serious errors were detected. Only two changes of eligibility were notified: in one case an eligible woman had been missed by an enumerator and in the other a woman who had been interviewed was, according to the supervisor, 52 years of age. In a further 8 cases, significant errors concerning such items as number of live births and incomplete listing of households members were detected.

It would, however, be incorrect to assume that this system of spot checks was a waste of time and effort for the psychological effect on enumerators, though unquantifiable, was probably of considerable benefit.

15. Use of cassette recorders

In order to obtain about 50 recorded interviews for analysis after the end of field work, 5 supervisors were issued with a cassette recorder each and were told to obtain 10 recorded interviews at the rate of 2 a week. Precise instructions are shown in the *Supervisors' Addendum*.

Unfortunately one machine broke down and one supervisor failed to follow instructions with the result that only 36 recorded interviews were received at headquarters.
It does not appear that enumerators experienced major difficulties in obtaining recordings, although, inevitably, the presence of a recorder tended to increase the shyness of the respondent. Unfortunately, the make of recorder used would hold batteries that lasted for two hours only. Consequently, on several occasions batteries faded during the course of an interview making the dialogue decreasingly audible. Problems were also experienced in transcribing inaudible or non-verbal responses and translating the colloquial idiom.
The usefulness of recorded interviews for *post facto* analysis of interviewing quality and problems depends, of course, on the assumption that they are broadly representative of all interviews. It seems probable that the smaller the number of recordings that are required, the greater is the likelihood that enumerators will make a special effort when recording, and conversely. In view of this, it would have been better to have planned for a much larger number of recordings, of which a sample would have been transcribed and translated. This tactic would have reduced the risk that they were atypical without raising costs to an unrealistic level.
At the suggestion of the WFS officer who arrived at the start of field work, an attempt was made to use recorders as a means of quality control during field work. However, lack of preparation and formal instruction, the existence of only 5 machines and the fact that each recording engulfed several hours of the supervisor's time rendered this attempt impractical. Clearly a very favourable ratio of supervisor to enumerators is needed to make this use of recordings feasible. Furthermore, its advantage over the alternative method where the supervisor listens to a live interview is slender.

16. Personal problems

Of the 90 field staff, the vast majority worked conscientiously and energetically, but inevitably there were a few exceptions to this general appraisal.
One case of deliberate cheating came to light when the editing team noticed that an enumerator's completed household schedules contained a surprising number of married women aged 50 or 51 and of never married but fertile women. Field checks of these suspicious households revealed a total of 10 eligible women who had been wrongly classified as ineligible by the enumerator and these were then interviewed.
Another enumerator, having worked for five weeks, was sent to strengthen another team and promptly 'disappeared', never even bothering to claim two weeks' wages that were owing to her.
Marital difficulties of various types were apparent. One supervisor became distracted by her errant husband and her quality of work declined markedly. She was dismissed at the end of the main interviewing phase instead of being retained for re-interviews and the post-enumeration survey. A young Indian enumerator shocked her team by starting to live with a married man during the course of the survey. The situation had to be watched carefully in case her personal life interfered with her work, but it was not found necessary to dismiss her.

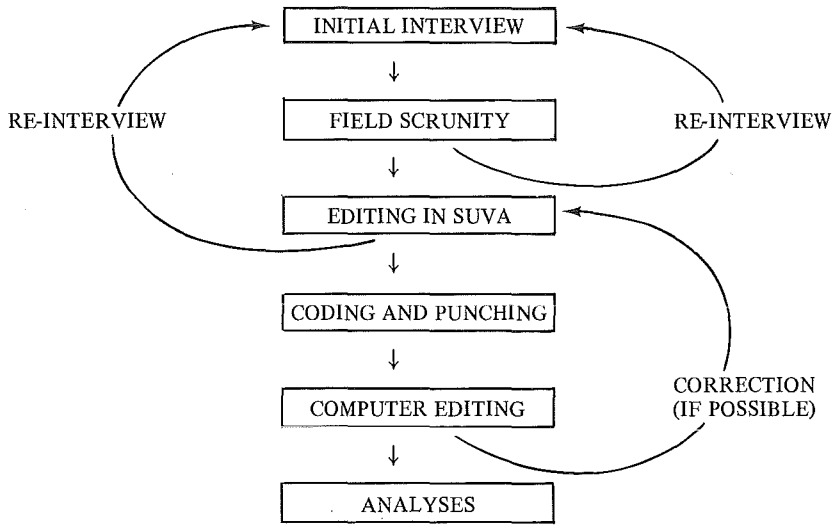
On the basis of these and other less important experiences, we suspect that a degree of scandalous gossip is a common danger faced with a large, female field force. Probably the freedom of mobility and finance, to which many were unaccustomed, was a contributory factor.

VII Field Checking and Office Editing of Questionnaires

1. Introduction

The literature on survey methodology is understandably reticent on the subject of editing and correcting completed questionnaires, for the subject bristles with awkward problems. Yet it is an important aspect of overall research design, especially for demographic surveys conducted in developing countries. In these circumstances, incorrect sets of data, especially information concerning the timing of events, are bound to arise and may be too prevalent to ignore with impunity.

In the Fiji Survey, we evolved a three-tier system of checking and correction. First, questionnaires were scrutinized by supervisors (and sometimes by technical officers) in the field. Second, they were edited by a specially trained team in Suva and, lastly, they were subjected to computer editing in London. In the first and second phases, some questionnaires containing serious errors were returned to the field for re-interview, but this tactic was clearly impossible following the third phase. The system is illustrated below:



Before describing each phase in detail, the rationale of the whole scheme is discussed. The main emphasis was placed on editing procedures in Suva rather than in the field, despite the obvious advantage of detecting errors at source while the interview was still fresh in the mind of the interviewer and a re-visit was relatively easy. The choice of this policy

was influenced by several considerations. For a start, not all enumerators were supervised and, even amongst those that were, the calibre of supervisors was not uniformly high. Furthermore, on the assumption that a detailed check might take 20 to 30 minutes for each questionnaire, we could not impose such a burden on supervisors without seriously distracting them from other duties. Lastly, the relatively small size of the country, the frequency of contact between headquarters and the field, and our overall field strategy made it feasible for most faulty questionnaires to be returned from Suva for re-interview without major disruptions or unrealistic expenses.

2. Scrutiny of questionnaires in the field

During the enumerator training, supervisors were given practice in checking questionnaires for defects. For the field work, a list of checks of the more important questions was compiled and may be found in the *Enumerators' Manual* (pp. 67–69) and *Supervisors' Addendum*. We estimated that this routine should take about ten minutes per questionnaire.

Supervisors were instructed to check all questionnaires as soon as possible after receipt, indicating errors in red ink. When serious errors were found, re-interviews had to be conducted by the supervisor herself or by the enumerator responsible. No precise definition of 'serious error' was attempted but a general instruction was given to re-interview where 'several questions[had] been omitted and where there[were] major inconsistencies in dates'. Technical officers also assisted with checking of questionnaires in the field, whenever other commitments allowed. They found that, with intense concentration, they could check a questionnaire along the lines described in the *Supervisors' Addendum* in less than five minutes though, at this pace, perhaps 10 per cent of errors were unspotted.

The supervisors' performance in scrutiny of questionnaires was uneven in quality. Many errors remained undetected until the main editing stage; and technical staff, on re-checking supervisors' work in the field, occasionally had to reject up to a third of all questionnaires. The main reason, as noted in the previous chapter, was probably mismanagement of their time, namely spending too long in the field and leaving insufficient time and energy for the demanding and boring task of checking.

Unfortunately, records do not show how many questionnaires were returned for re-interview before even reaching the Suva headquarters, but a figure of 5 per cent is probably not far from the truth.

3. Recruitment and training of editing team

An editing supervisor, a medical doctor who had recently resigned from government service prior to study abroad, was recruited and trained alongside enumerators. However, the main editing team was not recruited until after the start of field work. A press advertisement for women with School Certificate passes and high marks in mathematics yielded some 30 replies and, from these, the best ten were selected. Most were single girls who had left school recently.

The timing of recruitment was more the result of oversight than deliberate policy

because, in our haste to prepare manuals and the sample in time for field staff training, no serious consideration was given to editing needs. However, even if our anticipation had been better, the choice would have been difficult.

The advantages of a combined recruitment and training programme for interviewers and editors appear overwhelming but on closer examination, problems emerge. Firstly, the qualities that make a good interviewer differ from those required in an editor. In the former, a pleasant personality, maturity, and willingness to tolerate arduous field conditions are essential. In the latter, a methodical nature and good mathematical mind are more important. In the Fiji survey, we were able to take these factors into account by adopting different recruitment and selection procedures. As a result, the editing team differed from field staff in terms of age, personality, educational attainment and intellectual ability. Had we recruited and trained both types of staff together there would have been greater difficulty in tailoring personnel to job requirements.

The training needs of the two types of staff also differ in emphasis and length. To take the most obvious example, an editor does not need extensive practice in interviewing. As for length of training, enumerators required three weeks but a fortnight would be the maximum needed for an editor. Thus, to hold a combined training programme for both is inefficient in several ways.

The strategy that we adopted – recruitment and training of the editing team after the start of the interviewing phase – also had obvious disadvantages. It distracted some technical staff from the important task of monitoring field work and allowed a large number of questionnaires to accumulate at headquarters before editing could commence. The correct solution to the dilemma no doubt depends on the particular circumstances of each survey. Where field editing is confidently expected to be efficient and thorough, the final office editing process can be left until after the bulk of field work is over and can be conducted by the better field staff. But where field editing is relatively weak and re-interviewing of faulty questionnaires following editing at headquarters is considered feasible (as in Fiji), it is clearly preferable to train editors before the main interviewing phase begins. The choice between holding combined or separate training courses should take into account avalability of trainers, size of the editing team, financial resources and the characteristics of applicants for the two types of jobs.

Turning now to the content and durations of editors' training in Fiji: we were forced to make the period of instruction short, it lasted for only four days followed by a period of practice when each questionnaire was edited independently by two girls. Not surprisingly, this period was too brief for thorough instruction despite the fact that trainees were much quicker to learn than the enumerators had been. The training programme started with a general introduction to the survey and the questionnaire, and editing itself was not discussed until the third day. The last day was devoted to practice, first, on a specially prepared 'dummy' questionnaire containing many errors, and later, on sample questionnaires.

4. General conduct of editing

The detailed editing instructions may be found in the *Editors' Manual* which is reproduced in Appendix 5. Apart from detecting omissions and deleting answers to questions that should not have been asked, the bulk of editing work concerned checking the consistency of data. For instance, the number of living and dead children listed on page 11 of the questionnaire were checked against the total number of live births recorded for that respondent. Dates were examined to ensure that there was an interval of at least 8 months between consecutive live births, and that periods of contraceptive use did not overlap pregnancies by more than 4 months.

Comparison of household schedule data against data in the main questionnaire occupied a considerable portion of editing time. The fertility columns and date of most recent live birth in the schedule were checked against corresponding information in the main questionnaire. Ages of children listed in the schedule were matched against their birth dates in the Maternity History, though editors were instructed to ignore discrepancies of 2 years or less.

On finding an inconsistency or omission in a questionnaire, editors were allowed to change it themselves only if the correct answer was perfectly obvious from other parts of the questionnaire. In all other cases, they were instructed to make a note in the margin against the offending item and then describe the nature of the error on a separate and specially designed *re-interview sheet* (see Appendix 9) before handing both sheet and questionnaire to the editing supervisor for further action (see Section 6 below). All entries and corrections by editing staff were made with orange felt pens so that their work could always be distinguished from original entries or field supervisors' amendments.

Editing did not start until the fourth week of field work, by which time a considerable number of questionnaires had been received. This back-log was cleared in two to three weeks' time so that in the later stages of the survey, there was little lag between receipt of a questionnaire and its editing. In fact the editors worked so fast – some of them checking 40 or more questionnaires instead of the expected 20 per day – that suspicions about their thoroughness were aroused. An assessment of their work will be given after the nature of corrections and re-interviews has been discussed.

5. Analysis of errors corrected at headquarters

A content analysis of mistakes corrected without recourse to a re-interview was conducted by examining a randomly selected 10 per cent of all questionnaires. Of the total of 573 documents examined, only 220 or 38 per cent contained no such correction: however, the high proportion containing corrections is not so alarming when the triviality of many mistakes is taken into account. The nature of corrections is shown in the table below. One of the most striking features revealed in the table is the volume of corrections made to household schedules, especially in the form of amending data to correspond to information in the main questionnaire. One common error in schedules was the failure to

complete fertility and marital status columns for teenage girls and boys. This presented a dilemma, which was never solved by a consistent policy. Some schedules were returned for re-interview, others were coded 'no information' but in a substantial proportion (see categories 3.1 and 3.2 in the table) it was assumed by the editing team that these young people were infertile and/or never married. (Teenage marriage is not common in Fiji). Undoubtedly, it would have been a better research policy to have coded 'no information' and then applied an estimation technique (such as the El-Badry formula) to cope with missing data of this kind.

NATURE AND PREVALENCE OF MISTAKES CORRECTED BY EDITING TEAM WITHOUT RECOURSE TO RE-INTERVIEW

A. HOUSEHOLD SCHEDULE

		Number
1.	**Change or addition of items on basis of information in the main questionnaire**	
1.1	Age of R or R's children changed	73
1.2	R's fertility data changed	26
1.3	R's fertility data added	9
1.4	R's marital status changed	1
2.	**Change or addition of items involving no assumptions**	
2.1	Changes in eligibility code	20
2.2	Changes in relationship or sex columns	7
2.3	Deletion of inapplicable items	9
2.4	Miscellaneous other changes or additions	18
3.	**Entry of missing items involving assumptions**	
3.1	Entry of marital status for young persons assuming never married	16
3.2	Entry of fertility data for young or never married girls assuming no births	21
3.3	Miscellaneous other additions	2
	SUB-TOTAL	202

B	MAIN QUESTIONNAIRE	
4.	**Correction of mistakes caused by failure to follow skip instructions**	
4.1	Deletion of inapplicable items	71
4.2	Transfer of answer between Q.401 and Q.402	10
4.3	Transfer of answers from Qs.409–421 to Qs.422–429 because R is pregnant	6
4.4	Miscellaneous other corrections	2
5.	**Entry of missing items**	
5.1	Answer to Q.212 (whether child is alive or dead) added	12
5.2	Answer to Q.210 (sex of child) added	7
5.3	Miscellaneous other entries involving no assumptions	14
5.4	Miscellaneous other entries involving assumptions	8
6.	**Change in mode of recording answer**	
6.1	Change from '0' to '1' in Qs.104, 213, 215, 315, etc.	17
6.2	Change in answer to Q.703	9
6.3	Miscellaneous other changes involving no assumptions	6
7.	**Changes to inconsistent answers**	
7.1	Change Q.107 (age) to correspond to Q.106 (birth date)	22
7.2	Change Q.106 (birth date) to correspond to Q.107 (age)	11
7.3	Change Q.401–Q.403(a) (contraception in last closed interval) to correspond to periods of contraceptive use recorded in Section 3	13
7.4	Change dates of contraceptive use in Section 3 to avoid overlap with pregnancies	8
7.5	Change Q.403 because definite answer is given in Q.404	12
7.6	Miscellaneous other changes involving no assumptions	21
7.7	Miscellaneous other changes involving assumptions	28
	SUB-TOTAL	277
C	FRONT AND BACK PAGES	
8.	**Changes in identification number**	46
9.	**Changes or additions to address on page 1.**	19
10.	**Miscellaneous changes to answers on page 40.**	8
	SUB-TOTAL	73
	GRAND TOTAL	552

Corrections to the main questionnaire have been grouped into 4 main types. Errors caused by failure to follow skip instructions were the most common but the majority were simple to correct. Two skip instructions, at the start of Section 4 and following Q.407, were a frequent source of error.

The next 2 categories, entry of missing items and changes in mode of recording answers, were largely the result of careless work by interviewers. With missing data, there was often no alternative but to ask for a re-interview or code 'no information'.

Category 7, changes to inconsistent answers, raised the most problems. The largest number of edits concerned Questions 106 and 107: the respondent's date of birth and her age. Enumerators and editors were instructed to ignore discrepancies of 2 years or less between the two items of information but editors typically amended the data to obtain precise correspondence. Age rather than birth date was usually changed, except when other evidence, such as date of first live birth or marriage, suggested that the latter was incorrect.

Sub-categories 7.3 and 7.4 both concern consistency between periods of contraceptive use recorded in Section 3 with data from other sections. Where overlap between contraceptive use and occurrence of a pregnancy was noticed, the usual solution was to amend the period of contraception, except where there were grounds for believing that the pregnancy history might be at fault or the overlap was a major one, in which case a re-interview was required.

Sub-category 7.5 is an interesting example of what can happen when an intelligent editing section is inadequately supervised. Despite the complete absence of instructions, the girls decided that if a definite answer to Q.404, 'Did you want to become pregnant at that particular time?', was recorded then a negative answer to Q.403, 'Had you given any thought to whether you wanted another baby?', was illogical. They therefore decided to change the answer to Q.403 to 'Yes' in such cases until this practice was noticed and stopped by technical staff.

The nature of the two remaining miscellaneous sub-categories, 7.6 and 7.7, are best illustrated by example. Typical of the corrections involving no assumptions are:

1. Change Q.214 (breast-fed last child or not) from 'No' to 'Yes' because Q.215 (length of breast-feeding last child) clearly indicates breast-feeding;
2. change Q.201–204 (how many sons/daughters living at home/elsewhere) because of the residence status recorded in cols. 3 and 4 of household schedule;
3. change Q.205 (any child who died or not) from 'No' to 'Yes' because subsequent answers clearly indicate a dead child;
4. change Q.506 (place of work) from 'At home' to 'Away from home' because work is later described as 'selling fish at the market'.

Typical of the miscellaneous corrections which did involve some assumption or guesswork are:

1. Change date of sterilization from 3/62 to 3/63 because last live birth was on 11/62;
2. change date of miscarriage to avoid overlap with live births;
3. change Q.409 (ability to have another child) from 'Yes' to 'No' because R has been married 20 years without conceiving;
4. change Q. (next child wanted as soon as possible or not) from 'No' to 'Yes' because answer in Q.418 (desired age of youngest child when next one is born) is '3' and youngest child is already 3 years old;
5. change Q.429 (total number of children wanted by husband) from '4' to '5' because after the current pregnancy she will have 4 children already.

6. Analysis of errors corrected by re-interviews

The choice between ignoring an error, correcting it at headquarters or calling for a re-interview was taken by the editing supervisor in collaboration with technical staff. It proved to be a delicate matter of judgement, which had to take into account the relative importance for analytical purposes of different questions, the magnitude of any inconsistency, the relative reliability of different items, the degree of confidence with which amendments to answers could be made, the cost of a re-interview and so on. Though general guidelines were evolved during the course of the field work, inflexible rules could not be established as each 'faulty' questionnaire had to be judged in its entirety.

Once the decision to request a re-visit had been reached, a further choice between sending the re-interview sheet alone or accompanied by the questionnaire was faced. Though it was preferable to avoid sending the questionnaire because of risk of loss, it proved necessary to do so in most cases.[4] The reason for this lay in the inter-locking nature of many answers such that an alteration in one answer had implications for others. For instance, a changed date of a live birth while solving one inconsistency might create at the same time new inconsistencies with the answers on contraceptive use or miscarriages. Therefore, unless the enumerator had the questionnaire in front of her when re-interviewing, there was considerable risk that a third or even a fourth re-visit might be necessary before a consistent set of data was obtained.

Altogether, 131 re-interview sheets alone and 392 sheets with questionnaires were returned to supervisors from the survey headquarters for correction in the field. This high rejection level of about 10 per cent reflects not only the extent of careless field work but also the high standards imposed at headquarters.

A content analysis of 518 out of the total of 523 re-interview sheets is displayed in the table below. Most categories are self-explanatory and it can be seen that a large proportion of errors concern omission of data from the main questionnaire and schedule due to failure to follow skip instructions or carelessness. Item 6 is a further example of the consequences of inadequate supervision of editors. Though they had been given no instructions to this effect, editors started to query pre-marital births and pregnancies and 71 such queries were submitted to the field before technical staff stopped this habit. It

4 A total of 7 questionnaires were 'lost' in this way.

would seem that editors were possessed either by moral righteousness or naïvety! Incidentally, about half of these pre-marital events were 'defended' by field staff and half were changed to accord with convential morality. (After some hesitation, it was decided to let these amended answers stand, rather than revert to original answers.)

NATURE AND PREVALENCE OF MISTAKES CORRECTED BY RE-INTERVIEW

A	HOUSEHOLD SCHEDULE	Number
1.	Queries about identification and eligibility	29
2.	Omission of fertility data for never-married or older women	38
3.	Miscellaneous other omissions (esp. marital status of men)	27
4.	Miscellaneous other queries	17
B.	MAIN QUESTIONNAIRE	
5.	Omission (esp. beginning of Section 4; page 11, Section 8; details of contraceptive use in Section 3)	193
6.	'Discrepancies' between marriage dates and dates of live births/ pregnancies	71
7.	Overlap between contraceptive use and pregnancies	50
8.	Discrepancy between 'Yes' in Q.501 and 'No' to Qs.502–505	29
9.	Discrepancy between R's date of birth and dates of marriage/ first live birth	25
10.	Impossibly short pregnancy intervals	22
11.	Discrepancy in number of live births	21
12.	Queries about improbable answer to Q.409	14
13.	Miscellaneous other discrepancies	61
	TOTAL	597

Item 9 concerns cases where the respondent's date of marriage or date of first live birth indicated that she was under the age of 12 at the time of the event. The rule to query such cases was included in the *Editors' Instructions*.

Item 12 reflects a concern with respondent incomprehension of the crucially important Q.409 (ability to have another child). The fourteen questionnaires returned to the field all contained extremely implausible negative answers to this question.

An analysis of re-interview requests by interviewing team reveals the uneven quality of field staff employed in the survey. At one extreme, the 4 Suva and Nausori teams with a total allocation of 1500 households had only 36 questionnaires rejected. At the other extreme the Navua, Labasa and Sigatoka teams with responsibility for some 1300 house-

holds mustered a total of 232 requests for re-interviews.
Over 90 per cent of questionnaires and re-interview sheets returned to the field were received back with appropriate corrections or explanations. Though we cannot tell in what proportion a re-visit to the household was conducted, it is clear from comments on sheets that most enumerators were conscientious in this respect and resisted the temptation to fabricate a correction.

7. An assessment of office editing

In the preceding sections, the volume and nature of errors detected by the editing team has been amply illustrated. However, as later revealed by computer editing, a large number of defects remained unspotted. Hence the fear that editors worked so fast that thoroughness was jeopardized is at least partially substantiated.
Possibly the key defect in the editing operation was inadequate supervision. The editing supervisor, though a highly competent person, had the additional responsibilities of organizing the registration and filing of questionnaires, and of answering numerous queries from the field and technical staff. As a consequence, she had insufficient time to pay close and constant attention to the work of her editing team.
This inadequacy was made worse by poor organization on the part of technical staff. Two officers were in charge of drafting the editing manual and training the team, but as soon as training was ended, they departed on field trips leaving colleagues at headquarters who had been only marginally concerned with this aspect of the survey. This unsatisfactory arrangement left the editing supervisor in a vulnerable and isolated position with insufficient technical help. Many editing decisions are extremely difficult, requiring a demographic background and a comprehensive grasp of the purpose of the survey and eventual analytical needs. In short, the continual, if not continuous, presence of a technical officer appears to be essential for proper editing.
We should have had a more favourable ratio of editing supervisors to editors, perhaps 1:5 instead of 1:10. In addition, the tedious and onerous task of registration and filing questionnaires should have been given to someone else. Greater supervisory resources would have allowed a 10 per cent re-check of all edited questionnaires, thus ensuring a higher standard of work and reducing the complications and volume of errors later detected by the computer.
One of the great difficulties of editing is the temptation to use informed guesswork in amending inconsistent data or entering missing answers. Too strict an approach will lead to loss of information and/or an unacceptable increase in field costs for re-interviewing. Too lax an approach threatens the integrity of the whole survey. In Fiji, we adopted two useful commonsense rules that 'less important' data (e.g., dates of contraceptive use) and data which is intrinsically 'less reliable' (e.g., date of a miscarriage) would be changed more readily than information more central to the eventual analysis (e.g., date of first live birth). The guiding principle was that no information of significance be fabricated or changed through guesswork. With some exceptions which have been described above, we

feel that this principle was followed.

A final problem of editing concerned flexibility of decision-making. We have already stressed the need for a flexible attitude in which each faulty questionnaire is judged as a unique case. Yet this approach can easily deteriorate into arbitrary and inconsistent choices between adding data or coding 'no information', between amending or leaving inconsistent items, and between correction at headquarters and re-interviewing. In the Fiji survey, we veered rather too much on the side of flexibility and we would suggest that, in other surveys, editing problems are anticipated and more detailed policies adopted before the start of field work. This is obviously vital where the main emphasis is on editing in the field. We hope that the content analysis of errors outlined above will assist others to anticipate problems and defects likely to emerge.

VIII Documentation and Coding of Questionnaires

1. Introduction

Discussion in this chapter concerns two distinct aspects of the survey: firstly, the handling, filing and recording of questionnaires at headquarters and, secondly, the transfer of information form questionnaires to coding sheets prior to punching. Though neither is of great methodological interest, both raise administrative problems which, unless foreseen, can disrupt the orderly progress of a survey. Once again, it is hoped that a description of our procedures and difficulties may be of assistance to other WFS projects.

2. Filing and storage of questionnaires

Two small rooms with portable shelf units were available for filing and storage of questionnaires. These rooms also acted as office space for the editing team.

On receipt from the field, the identification number of each questionnaire was immediately entered into a main register. This register was subdivided into sections corresponding to the work of each interviewing team. Identification numbers together with the dates, the names of the persons delivering them and the enumerators' names, were entered in the appropriate section in the order in which they were received. They were then stacked on shelves to await editing. Because of insufficient shelf space, it was impossible to assign a separate pigeon hole for each of the 100 areas. Instead, an area of shelving, subdivided into a lower and upper half, was allocated for the work of each team, as in the main register. The upper half was reserved for unedited questionnaires, while edited documents were stacked on the lower half.

The main register was designed not merely for noting the initial receipt of questionnaires but also to record the various stages of editing and re-interviewing. Thus, before each edited questionnaire was returned to the shelf, an appropriate entry was made in the register. The 11 column headings of the register were as follows:

1. Date received from field
2. From whom received
3. Identification number
4. Enumerator's name
5. Editor's name

RESULT OF EDITING

6. Correct
7. Corrected in office
8. Re-interview sheet alone sent (date)
9. Questionnaire returned to field (date)

FOR RE-INTERVIEWS ONLY

10. Returned from field (date)
11. Remarks

Because of shortage of space at Survey headquarters, coding and transcription of questionnaires were conducted in a hall about one-and-a-half miles away. Each morning questionnaires were transported to the hall and returned to the editing rooms at the end of the day for security reasons. To minimize the possibility of loss, a separate coding register was maintained, in which the identification numbers of questionnaires issued to, and received from, the coding team were entered. After coding, questionnaires were stored on a different set of shelves in the second editing room. Finally, in yet another register, a list of coding sheets sent to London for punching was completed.

The end result of this meticulous and laborious effort was satisfactory: only one questionnaire was mislaid. However, there are several ways in which the operation could have been made more efficient. First, the shelving was insufficient in quantity and design. For optimal handling, we required 3 'pigeon holes' for each area: one for unedited, one for edited and one for coded documents. The expense of constructing such a grid would have been amply justified by increased efficiency. Secondly, the main register should have been better designed. The identification number of each household in the sample should have been entered in numerical order by area prior to the start of field work. Though the clerical burden of writing over 5,000 numbers may seem excessive, we are convinced that the gains would have been considerable. Not only would the job of registering incoming questionnaires have been facilitated but 'missing' and 'unaccounted for' households could have been spotted instantly. Progress in each area could also have been monitored with much greater ease. Thirdly, if we had acquired a ledger of sufficient width, coding details could have been included in the main register and the compilation of a separate coding register would have been unnecessary, thus reducing clerical time. Conversely, we now think that details of questionnaires returned to the field for re-interview should have been recorded separately as this phase only affected a minority and progress could have been more easily scrutinized with a separate register.

3. Documentation of field work results

As field work ends, one of the immediate tasks is to ensure that the outcome for each selected household is known and is acceptable. Speed in this matter is important as deficiencies must be detected early if they are to be corrected by further field work. This aspect of the Fiji survey was one of the least satisfactory.

Several previously mentioned factors contributed to this state of affairs. Some field staff were confused about identification numbers (see Ch. V, Section 8) with the result that a great deal of detective work at headquarters was required for correct identification of some questionnaires. The problem was occasionally acute for interviews where there had been a change of household membership since listing. Though enumerators had been told to make a note on the top of the household schedule to explain any discrepancy between

the name of the head of the household on the Sample Household List and the name entered on the schedule, some failed to do so. Questionnaires for second or third eligible women in the same household, for which there was no completed household schedule, were also particularly troublesome. Our failure to instruct enumerators to enter the name of the respondent in such cases was a serious mistake. Carelessness amongst field staff in entering the wrong line number and even the wrong area number was also encountered. Clearly, it is impossible to over-stress during field staff training the importance of meticulous care in this regard.

The inadequacies of our field documentation and, in particular, the supervisors' Sample Household Lists, have also been discussed (see Ch. VI, Section 13). Loss, late return and incompletion of these forms proved a major obstacle to description and tabulation of sample success rates. The situation could have been improved if all supervisors had come to headquarters for final de-briefing and clarification of queries but unfortunately such a policy was not adopted.

The outcome for each household was first entered on spare copies of Sample Household Lists and, later, a summary for each area was prepared in specially designed work sheets (see Appendix 9).

It took more than 6 weeks of cross-checking, counting and re-counting after the end of the interviewing phase before a complete picture of the outcome of field work was obtained. During this period, about 15 households previously omitted were interviewed. Despite this last-minute effort, no explanation for the failure to interview some 30 households could be established at the final count and an additional 50 households were allegedly interviewed but their questionnaires were never received at headquarters. The size of this latter group caused concern. We suspect that the majority were, in fact, never interviewed but erroneously recorded as such on field documents. Nevertheless, the probability remains that some at least were lost in transit.

In a well-run survey, the final outcome for each selected household should be known within a week of the end of field work. With an efficient system of field documentation and filing at survey headquarters plus the presence of supervisors to clarify problems, this objective can be achieved without difficulty. The failure of the Fiji Survey in this regard was conspicuous.

4. Coding and transcription of questionnaires

Preparation of questionnaires for punching was complicated by two factors. First, because of inadequate facilities in Fiji, punching and analysis of data had to be done in London. As the cost of air-freighting questionnaires was prohibitive, and there was also the question of confidentially, we had no alternative but to transfer data onto separate coding sheets (see Appendix 6). Second, last minute changes to the questionnaire, the absence of any documented plan for coding and difficulty of liaison with London-based staff led to the omission of pre-code numbers from the interior of the coding boxes on the questionnaire. Preparation for punching thus had to be in two stages: codes for answers had to be entered into questionnaires and then these codes had to be transcribed onto

coding sheets. There is no doubt that the cost and length of time required for the whole operation would have been greatly reduced if punching could have been done direct from pre-coded questionnaires. Furthermore, the degree of clerical error would have been reduced.

Coding was started towards the end of field work when only a few areas plus some re-interviewing remained to be completed. Eighteen coders were recruited from amongst supervisors and enumerators in the Suva area and from the editing team who, by then, had also finished the bulk of their work. This group was reinforced three weeks later by another twelve staff picked from the same sources. The use of field staff for coding saved much time that would otherwise have been spent on training. In addition, their familiarity with interviewing enabled them to detect errors and inconsistencies that had not been spotted by editors.

All coders received one day's training, followed by a period of closely supervised practice. An extensive 56-page coding manual was prepared in London (illustrative pages of which are shown in Appendix 6) and issued to each coder. The bulk of coding was straightforward as most answers were already in numerical form or in simple 'Yes' (= Code 1), 'No' (= Code 2),'Don't know'(= Code 3) format. The lengthy manual was inconvenient to use as instructions for the few difficult questions were buried amidst a mass of straightforward details. Accordingly, an abbreviated set of codes dealing with the difficult questions was prepared (see Appendix 6) and given to each coder.

We considered the policy of prior-coding of the few open-ended questions (especially those on occupation and industry) by a small cadre of specially trained staff, but decided that it was unnecessary. The main reason for this decision was that a member of the technical staff would always be present during the coding operation and he would thus be in a position to assist with problem cases.

Once questionnaires had been coded, all that remained was for the code numbers to be transferred to the appropriate column on the four coding sheets (see Appendix 6). This task was simple but extremely demanding, both in terms of concentration and strain on the eyes.

The organization of work provoked a great deal of discussion and some mild disagreement between technical staff. Initially, we evolved a 'short and closed-circuit system' with teams of 4 girls, one each for the 4 basic procedures: coding, checking of coding, transcription and checking of transcription. To relieve monotony, staff were instructed to change positions in the circuit every few hours. However, after a short trial period, this system was abandoned because team members worked at different speeds, thus creating bottle-necks and waste of time. Instead, a 'production line' system involving five teams of six members each was adopted. The first team was assigned to a separate table where four of them coded while the remaining two checked their work. Three teams were assigned to the transcription process. The first member transcribed coding sheet 1; the second, coding sheet 2 and so on to coding sheet 4. The other two members, seated at the end of the table, were responsible for checking the transcription of all four sheets.

The last team of six undertook a final checking of both coding and transcription. They

worked in pairs, one of them reading out the codes from the questionnaire while the other checked the sheets. It was originally envisaged that this team could be disbanded after the early weeks of coding but, as they continued to find an average of nearly one mistake per questionnaire, they were retained throughout. Finally, coding sheets for each main interview were stapled together and dispatched to London.

No thorough and objective assessment of the quality of coding has been attempted though the marginal distributions of the raw data show few 'wild' codes. However, some serious and elementary defects were detected by the WFS London staff.

A total of about 500 sets of coding sheets were found with some missing or with differing identification numbers. It would appear that our 'production line' system, whereby the transcription of each questionnaire was done by several people, is prone to this type of error. It was extremely fortunate that these defects came to light before the data were punched and put on tape. In addition, about 150 instances of error concerning the coding of eligibility and about 250 miscellaneous other coding errors were detected. These mistakes were the result of inadequate control of the coding operation.

It is clear from our experience that simple visual checking by one person of another's work is relatively ineffective because of the excessive degree of concentration required. Checking in pairs, with one reading and the other checking, appears to be more effective; though, of course, this tactic is only feasible when a transfer of information from one document to another has taken place.

LIST OF APPENDICES

The following Appendices to this report are issued as Occasional Paper No. 16:

1. Questionnaire

2. Manual of Instructions for Enumerators (abbreviated)

3. Supervisors' Addendum to the Instruction Manual

4. Instructions to Listers
   Special Instructions for Listing Supervisors

5. Manual of Instructions for Editors

6. Coding Manual (illustrative pages only)
   Coding Sheets
   Short List of Codes

7. Extracts from Statistics Ordinance
   Oath of Secrecy

8. Programme for Enumerator Training
   Training Test

9. Deployment Plan for Supervisors and Enumerators (illustrative pages only)
   Re-interview Sheet
   Sheet for Summarizing Response Rates for Each Area.

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2.	The World Fertility Survey: Problems and Possibilities	J. C. Caldwell
	World Fertility Survey Inventory: Major Fertility and Related Surveys 1960–73	
3.	Asia	Samuel Baum *et al*
4.	Africa	
5.	Latin America	
6.	Europe, North America and Australia	
7.	The Study of Fertility and Fertility Change in Tropical Africa	John C. Caldwell
8.	Community-Level Data in Fertility Surveys	Ronald Freedman
9.	Examples of Community-Level Questionnaires	Ronald Freedman
10.	A Selected Bibliography of Works on Fertility	György T. Acsádi
11.	Economic Data for Fertility Analysis	Deborah S. Freedman (with Eva Mueller)
12.	Economic Modules for use in Fertility Surveys in Less Developed Countries	Deborah S. Freedman and Eva Mueller
13.	Ideal Family Size	Helen Ware
14.	Modernism	David Goldberg
15.	The Fiji Fertility Survey: A Critical Commentary	M. A. Sahib *et al*
16.	The Fiji Fertility Survey: A Critical Commentary–Appendices	M. A. Sahib *et al*
17.	Sampling Errors for Fertility Surveys	L. Kish *et al*
18.	The Dominican Republic Fertility Survey: An Assessment	N. Ramírez *et al*
19.	WFS Modules: Abortion · Factors other than Contraception Affecting Fertility · Family Planning · General Mortality	WFS Central Staff

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