The medical record envelope—a case for reform

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THE importance of medical records as instruments in the delivery of clinical care, in administration and in research, is widely acknowledged. Taylor (1954) observes that the key to good general practice is the keeping of good clinical records, while Fry and Blake (1956) claim that records are the very basis of all good medicine. These opinions have been reiterated, particularly in relation to group practice, by Corbett (1962), Forman (1965), Spencer and Vallbona (1965), Brotherston (1967), Byrne (1968), Kuenssberg (1968), and Pinsent (1969).

The potential usefulness of the medical record in general practice is theoretically enhanced by the unique opportunity presented by the British National Health Service in the practitioner's clearly-defined population (his 'list') of patients for whose care he is responsible, and by the provision for the patient's records to pass from doctor to doctor when the patient transfers (Ministry of Health 1955, Kuenssberg 1966, Eimerl 1967, *Lancet* 1967).

Geeves (1957) and Staines (1962) comment that surprisingly little has been written on records in general practice, and Slack *et al* (1966) observe that:

> in spite of the homage devoted to the importance of the medical history there has been little research on the subject. Neither the method of history taking and recording, nor the reliability and usefulness of the data collected has been studied as rigorously as the other tools in clinical medicine, in large part because neither method nor data lend themselves well to research.

Last (1967) has examined some of the implications of four major studies which include some assessment of general practitioners' medical records: Those of Peterson *et al* (1956) in North Carolina, Clute (1963) in Ontario and Nova Scotia, Querido (1963) in Amsterdam and Jungfer (1965) in Australia, and he is of the opinion that these confirm the observation that the general practitioner often fails to appreciate important details in the patient's domestic background or personality. From the United Kingdom there have been three reports incorporating some appraisement of medical records in general practice. Collings (1950) sombrely reported that on his visits to 55 practices he never saw anything approaching good records and most of them were poor in the extreme. Hadfield (1953) repudiated this in his study of the practices of 188 practitioners where he found that three out of four "paid reasonable attention" to record-keeping, his criterion of "reasonable attention" appearing to be the fact that the doctor had the record card out for each patient attending the surgery. Taylor (1954) did not comment on the standard of the records kept by the 94 practitioners he studied, but drew some conclusions on aspects of good record-keeping.

Interest in record keeping in general practice in the United Kingdom has quickened in recent years. The Gillie Committee in their report on the Field of Work of the Family Doctor (Central Health Services Council 1963) proclaimed itself to be far from satisfied with the format of the documents used for general-practice records in the National Health Service and felt that much study and trial must be undertaken, urgently, so that a change acceptable to doctors can be proposed. The Tunbridge Committee in their report on the Standardization of Hospital Medical Records (Central Health Services Council 1965) expressed the hope that general-practitioner organizations would continue to give serious study to the purpose and best use of the existing records as well as to their

improvement. Forbes (1968) in a paper reporting some of his work in connection with the Oxford Record Linkage Study, was of the opinion that the record envelope used in general practice today is inadequate for the purposes of modern medicine and felt that an investigation into the current record system should perhaps precede, or at least be associated with, any plans for the application of computers in community care.

As a contribution to the studies requested by Gillie, Tunbridge and Forbes, this paper examines some of the contents of general practitioners' medical records and some of the deficiencies which emerge.

Objects

The object of this survey is to quantify some of the data recorded about patients in their records held by general practitioners, to examine the documentation that accrues, and to assess some of the deficiencies in recording that emerge. Such an investigation, carried out single-handed by an individual practitioner, must be limited in its scope, but it is hoped that the findings may indicate certain features which could more fruitfully be explored in depth by better-qualified investigators.

The survey was carried out by means of a questionnaire designed to elicit information from a sample of patients in the author's own practice, and the data obtained was compared with information entered in the patients' medical records.

Material

The practice

The practice is a partnership of four doctors working in close collaboration in shared accommodation situated centrally in the village suburb of Corstorphine. A patient, who is of course registered with an individual partner, is at liberty to consult any one of the four doctors, so that any one partner frequently sees many of the patients formally registered with his colleagues. Geographically, the practice covers a suburban area on the west of Edinburgh, with the vast majority of the practice population concentrated within a two mile radius of the practice premises. The practice employs two full-time secretary-receptionists and three part-time nurses. As far as the records are concerned, the duties of these ancillary workers are largely confined to the filing of correspondence and the removal of the medical record envelopes from the filing drawers for the use of the doctors, and their subsequent return. With the exception of certain nursing procedures, the entry of data onto the records and the arrangement of documents filed within the records are the sole responsibilities of the doctors.

The conventional medical record envelope system (ECS 5, 6, 7 and 8) is used. The practice has an age–sex register of the population at risk over the age of 65. One partner keeps a disease index ('E' book). Consultations are entirely by appointment, although the full appointments system had not come into operation at the time this survey was being conducted.

The patients

The practice comprises some 10,000 patients on the combined lists of the four partners. The patients represent all social strata, with a preponderance of families of professional, clerical, skilled and semi-skilled workers; there is a high proportion of civil servants and employees at all grades of a major light-engineering firm. There is a considerable and increasing degree of mobility of patients in and out of the practice area, particularly in the newer housing estates, mainly by reason of work changes and promotion.

The type of housing occupied varies from the old properties of the central village of Corstorphine (now engulfed by Edinburgh suburb, but still considered a village by many of its inhabitants), to bungalow development along the axis of the Edinburgh–Glasgow

road, a number of housing estates (both private and local authority), the decaying tenements of the Gorgie-Dalry district, and a few outlying farms and farm cottages.

Method

A pilot survey was undertaken in July and August 1968. Three questionnaires were constructed, each with slightly different wording, but all designed to elicit information about the patient and his own medical history and the medical history of his family. Consecutive patients seen at the surgery by the author, provided they were aged between 21 and 75, were handed an explanatory letter and a copy of the questionnaire with a brief verbal explanation of its purpose, and were invited to fill this in at home and return it in the pre-addressed, stamped envelope provided.

Only those patients attending the one doctor were approached and home visits were excluded. Apart from the restrictions of the age-range chosen, exceptions were made of a few patients who were distressed at the time of consultation, as it was felt that the introduction of a topic not directly related to the reason for consultation might have added to the distress—even when the topic was introduced (as was the routine practice adopted) at the end of the consultation with some such formula as "and now could I ask you to do something for us. . . ."

When the questionnaire was handed to the patient the outside of the medical record envelope was marked and the patient's name and the index number of the questionnaire entered separately into a notebook and dated. After the completed questionnaire had been received and the record processed the distinguishing mark on the medical record envelope was cancelled.

Thirty copies of each of the three slightly differing forms of questionnaire were distributed as above. The differences were such that it was possible to analyse all the results together, and a comparison between the ways in which the replies were entered enabled a basis to be constructed for the 'definitive' questionnaire used in the main survey; for instance it was found that more accurate answers could be obtained when asking specifically about siblings or children than when using a general question about relatives.

When the completed questionnaire was received it was examined along with the patient's medical record and the data obtained was noted and entered up on Cope-Chatterton punch cards for subsequent analysis.

Following the results of the analysis of the pilot survey a simplified questionnaire was constructed. Two hundred patients, sampled in the same manner as outlined above (although now all patients who had submitted answers to the previous questionnaires were excluded) were invited to complete the revized questionnaire in January–February 1969. The same methods of analysis were used as had been implemented with the pilot, with a more detailed investigation of items pertaining to family history and to the documentation collected in the medical record envelope.

The results of the main survey are reported below, with the addition of certain data from the pilot study where these are relevant to items which were omitted from the final questionnaire.

Results

Response

Of the 200 questionnaires given out, 188 were returned completed, giving a response rate of 94 per cent. In respect of one patient who returned a questionnaire, the record could not subsequently be found; it was assumed that this patient must have moved and the record been recalled between the time that the questionnaire was given to her and the time that the results were analysed. The number of completed questionnaires which were analysed was therefore 187.

Personal data

Sex. Of the sample of 187; 46 (25 per cent) were men; 142 (75 per cent) were women. This 3:1 ratio of women to men is higher than would be expected for the average consultation patterns in the adult range, which is more nearly 2:1. The explanation may lie in the fact that the sample of patients included those attending special antenatal clinics.

Age. The age range of the sample is shown in table I.

The preponderance of young women can again be explained by the inclusion of those attending the antenatal clinics.

Length of time on list. The length of time that each patient in the sample had been on the list of one of the partners in the practice was examined (table II).

TABLE I
AGE RANGE OF SAMPLE

Ages	*Men*	*Women*	*Total*	*Total as percentage of sample*
21–30	6	50	56	*30*
31–40	11	35	46	*25*
41–50	12	25	37	*20*
51–60	7	18	25	*13*
61–70	8	10	18	*10*
71–75	2	3	5	*2*
All ages	46	141	187	*100*

TABLE II
LENGTH OF TIME ON LIST

Length of time on list	*Men*	*Women*	*Totals*	*Total as percentage of sample*
Under 6 months ..	5	23	28	*15*
6 months—1 year ..	2	11	13	*7*
1—2 years ..	1	15	16	*9*
2—5 years ..	7	30	37	*20*
5—10 years ..	11	30	41	*22*
More than 10 years ..	20	32	52	*27*
TOTALS ..	46	141	187	*100*

These figures, showing just over half of the sample as registered with the practice for less than five years, reflect in part the mobility of the local population, with the consequent necessity for adequate records to reinforce the doctor's memory.

Matching length of time on the list with patients' ages, tends, not unexpectedly, to confirm that patients in the older age groups (50 and over) are more settled and form a much smaller proportion of the mobile population (table III).

TABLE III
LENGTH OF TIME ON LIST IN RELATION TO AGE

Length of time on list	*21–30*	*31–40*	*41–50*	*51–60*	*61–70*	*71–75*	*Totals*
Under 6 months	17	4	4	1	1	1	28
6 months—1 year	8	1	1	1	1	1	13
1—2 years	9	3	2	1	1	—	16
2—5 years	15	12	5	4	1	—	37
5—10 years	2	18	13	6	2	—	41
More than 10 years	5	8	12	12	12	3	52
TOTALS	56	46	37	25	18	5	187

Previous doctors. An assessment was made of the number of practitioners through whose hands the records of the patients in this sample had passed. This information can only be obtained in approximate form; on some medical record envelopes the

information is apparent from the names of doctors and dates on which the patient had registered with these doctors, but in many cases fresh envelopes had been issued or a label placed over the names of earlier practitioners. In a high proportion of the latter instances, with the kind permission of the clerk of the executive council, the information could be extracted from executive council records, but even these are incomplete. Difficulties also arise where National Health Service patients have been removed from executive council lists on moving out of the United Kingdom and subsequently returning or when patients join the list after service in the forces. The figures given in table IV are thus only approximately accurate, and tend to underestimate the numbers of doctors concerned.

TABLE IV
PREVIOUS DOCTORS

No. of doctors with whom the patient was previously registered	*Men*	*Women*	*Totals*
None	9	11	20
One	16	39	55
Two	9	31	40
Three	7	23	30
Four or more.. ..	3	27	30
Not traced	2	10	12
TOTALS	46	141	187

Matching the number of doctors with whom the patient was previously registered with length of time on the list of one or other of the partners in the practice being examined (table V), it is seen that only 20 patients (11 per cent) had records which had been kept only by the doctors in the practice, while 22 patients (12 per cent) who had been registered with the practice for five years or less had previously been on the list of four or more other practices. This again provides some reflection of the mobility of the population within this practice area.

TABLE V
LENGTH OF TIME ON LIST AND PREVIOUS DOCTORS

On list	*Previous doctors*						
	None	*One*	*Two*	*Three*	*Four or more*	*Not traced*	*Totals*
0—6 months	1	1	6	7	9	4	28
6 months—1 year	—	2	6	2	2	1	13
1—2 years	—	9	4	—	2	1	16
2—5 years	—	11	6	7	9	4	37
5—10 years	2	14	12	7	5	1	41
More than 10 years	17	18	6	7	3	1	52
TOTALS	20	55	40	30	30	12	187

In the analysis of the pilot study, a sample of records was taken (those where the executive council's cards had to be consulted) and the names of the individual doctors were noted. Out of a list of 122 doctors, nine names appeared more than once (that is to say nine doctors had had two or more of the patients referred to in this sample on their lists prior to the patients joining the author's practice). Seven of these doctors' names appeared on two patients' records each, one on three records and one on four records. From this it can be roughly calculated that approximately 10 per cent of the names of doctors with whom patients in a given sample were previously registered (in the same executive council area) are likely to be duplicated in a given sample of patients.

Taking the 155 patients who had one, two, three or four or more previous doctors (and underestimating by assuming that all those who had had four or more had only four), the names of 345 doctors are represented, and adjusting this figure by subtracting 35 as

representing the 10 per cent assumed to be duplicated, it can be calculated that these 155 records between them represent the recording habits of 310 different doctors. This is not an accurate calculation, but it does serve to show that the facts elicited from this survey emerge not simply from the recording (or lack of recording) of the four partners in the practice examined, but from a wide range of practitioners.

Civil status. The civil status of the sample is shown in table VI.

Of the 161 married patients, the fact of marriage was not noted on the record envelope in 102 cases. This is not quite as serious as it appears at first sight, in that this figure of 102 includes all 41 married men, as, up until a time subsequent to the analysis of these records, there was no provision for indicating civil status on male medical record envelopes. This is information which can sometimes be of some importance medically, and the most recent printing of the Scottish medical record envelope allows for such recording, which is a small but welcome advance.

Of the 120 women who were married, the fact was not recorded in 62 instances (52 per cent). In some of the older forms of medical record envelope there is no provision for recording the married state for either sex and, in a proportion of the 62, that the patient was married, though not directly recorded, could be deduced from the fact that the previous name had been crossed out and the married surname substituted.

In respect of the eight widows, on only one card was the fact of widowhood recorded, and the one widower was similarly not recorded. For neither of the two patients who were married but separated was the fact noted in the record.

The simple recording of civil status is important, but its importance would be considerably amplified by the entry of date of change in an appropriate place; there is no allowance for this on the conventional medical record envelope, and this is a small modification which should be introduced.

TABLE VI
CIVIL STATUS

Status	*Men*	*Women*	*Total*	*Total as percentage of sample*
Married ..	41	120	161	*86*
Separated ..	1	1	2	*1*
Widowed ..	1	8	9	*5*
Single ..	3	12	15	*8*
TOTAL ..	46	141	187	*100*

TABLE VII
RECORDING OF OCCUPATIONS OF WOMEN

Women	*Recorded*	*Not recorded*	*Total*	*Total as percentage of sample*
Full-time employment	14	20	34	*24*
Part-time employment	7	20	27	*19*
Non-employed			81	*57*

Name, address, and date of birth. In three cases among the 187 records examined there were inaccuracies in the recording of names—all of these were minor. One was an inaccuracy with regard to a forename, one a mis-spelt surname and in the other initials were incomplete.

One address was incorrect and one other address was incomplete (a flat number had been omitted). In an area where there is a fairly high degree of local mobility of the population such inaccuracies are not surprising, and are of relatively minor administrative importance.

Accurate recording of date of birth is of greater importance, in that this is a valuable fixed point for patient identification. In this survey there were six instances (four per cent) where the date of birth was incomplete, two where the date of birth was

not recorded and one date was incorrect. In some cases only the year of birth was recorded, and on some of the older records (pre-NHS envelopes for National Insurance patients) there was no provision for direct recording of date of birth—the information recorded being "age at first consultation".

The figures in this section compare favourably with the findings of the workers who set up a long-term epidemiological study of health problems in the city of Exeter, who found in the course of their registration operation that many of the general-practice records were incomplete, and in particular that addresses were often many years out of date and information about the age of the patient was frequently either missing altogether or inaccurate (Ashford and Pearson 1968). The Exeter study involved complete practice populations while the sample studied here was of patients actually consulting, where it would be expected that administrative details would be more likely to be complete.

Occupation or employment. Of the 46 men questioned, in 15 cases (33 per cent) their occupation was not recorded on the medical record envelope, and in two the occupation recorded was incorrect. The figures in respect of the 142 women are shown in table VII.

These are surprising and disturbing findings; there is space on the medical record envelope for the recording of occupation and this is information of considerable importance. The deficiency here reflects lack of system and lack of training in the keeping of records. It could be argued that a question on occupation should be asked whenever a patient is seen for the first time. Difficulties arise with changes in occupation and in this respect, as with changes in civil status, dating of such changes is useful, and there is provision for this on the outside of the medical record envelope.

In summary, of the 107 patients in the sample who were employed, the fact and nature of the employment was not recorded in 55 instances (51 per cent).

Clinical data

Serious illnesses. The definition of serious illness given on the questionnaire was "requiring hospital admission". This criterion of hospital admission was adopted simply as a convenient indicator for patients whose own interpretation of 'serious' would be liable to be varied. Only nine instances were found of serious illness which the patient remembered, but which had not been recorded. In some cases there were records in the form of hospital reports, but there was no entry on the continuation cards.

In the majority of cases failure to record was due to the episode having occurred before the record was instituted (*i.e.* in most cases before 1948), although instances of previously occurring serious illnesses often appear on patients' records as pertinent data recorded retrospectively.

Operations. Excluding relatively minor procedures (which for this purpose were defined as tonsillectomy and adenoidectomy, varicose vein ligation, stripping and injection, D's and C's, excisions of simple cysts, etc.) 29 operations were reported by patients which were found not to be recorded in the continuation cards. Four of these operations (an appendicectomy, herniorrhaphy, laminectomy and cordotomy) were carried out on one patient, so that the total number of patients whose records were involved was 26.

As with the recording of 'serious illnesses', these findings have no statistical significance in the absence of data about operations or serious illnesses which are in fact recorded, and any statistical analysis would have to take account of a number of variables which would certainly increase the complexity of the undertaking. Nevertheless, from experience it is fairly clear that quantitatively the deficiencies in recording of serious illnesses (at least as here defined) and of operations are of a relatively insignificant order,

especially when it is seen that the majority of instances where there is no record on the continuation cards, the information is obtainable from hospital letters filed in the envelope. Data that is only in hospital letters is not always easily accessible; these letters usually have to be folded to insert in the envelope and, especially when the total volume of correspondence is large, finding relevant information can be an onerous task. Thus, although information in hospital letters (which is often of considerable importance) is available it is not always easily extracted and may on occasions be missed.

Immunizations. In the pilot study respondents were asked about immunizations against diphtheria, whooping cough, tetanus, poliomyelitis and smallpox, and were given the alternatives "Yes/No/Don't know". The results are summarized in table VIII.

TABLE VIII
RECORDING OF IMMUNIZATIONS

Immunizations against (80 patients)	*Yes*	*No*	*Don't know*	*Recorded*
Diphtheria	29	31	20	0
Whooping cough	9	37	34	0
Tetanus	25	36	19	1
Poliomyelitis	28	37	15	2
Smallpox	54	11	15	2

This almost total lack of recording of immunization procedures can partially be explained by the fact that no children were included in the survey. In the main survey, because of the poor recording of immunizations revealed in the pilot, and because a substantial proportion of patients were unsure about their immunization status, the question was not asked, but instances of immunizations being recorded were noted, showing that out of 187 records examined, only 24 (12 per cent) contained any record of immunization procedures, and of these in only six was the use of more than one antigen noted.

The responsibility for carrying out and supervising immunizations tends to be divided between the local health authority and general practitioners, and the information about many of the immunizations recorded above was extracted from notifications sent to general practitioners by the local health authority.

There is reason to believe that recording of immunizations has improved recently, and this is facilitated by newer printing of the medical record envelope providing space on the back specifically for such recording. If this supposition that the recording of immunizations is improving is correct, it would not be likely to show in this survey because of the restriction in age range which excluded children.

The value of recording immunization procedures rests largely in the means provided for checking that full prophylactic schedules are being carried out. This is a field where the employment of computers, both for recording and for follow-up, can be of the greatest practical help, and successful schemes are already in operation (Galloway 1963, 1966, Gruer and Heasman 1970).

Handicap of spouse. It was felt that it would be of interest to know when a patient's spouse was unable to carry on his or her normal activities on account of some handicap or chronic illness, as such disability will have a considerable effect on the other partner in the marriage and will often be a contributory factor in the assessment of that partner's medical and social problems.

In the sample of 187, eight instances came to light—all referring to the husbands of respondents. Five of these cases were recorded: In three the husband suffered from depression (one of these associated with a cerebrovascular accident), one had severe

angina and one was epileptic. The three unrecorded cases comprised one of crippling rheumatoid arthritis, one leg amputee and one who was both deaf and depressed. The number is too small to allow of any firm conclusions, but this sort of information is useful to record and should be recorded in some standard part of the record, separate from the day-to-day continuation data.

Family history. A knowledge of the history of a patient's family, in terms of major morbidity, may provide important background material for the understanding of that patient's own illnesses. In this section an analysis is made of the items of family history elicited from patients by means of the questionnaire, compared with the actual recording of such items in the patients' medical records.

It is difficult to attribute precise significance to family history, either in terms of pathology or of relationship. An arbitrary decision was therefore made in analysing these results to accept history of illness in parents, children and siblings, but to exclude grandparents, aunts and uncles, cousins and more distant relatives. Table IX summarizes these findings in relation to the number of patients reporting family history of morbidity of various systems.

TABLE IX

PATIENTS REPORTING FAMILY HISTORY—(NUMBERS AND PERCENTAGE OF SAMPLE)

System or condition	*Recorded*		*Not recorded*		*Totals*	
	No.	*Per-centage*	*No.*	*Per-centage*	*No.*	*Per-centage*
Respiratory system	3	*1*	57	*31*	60	*32*
Cardiovascular system	4	*2*	57	*31*	61	*33*
Digestive system	3	*1*	45	*25*	48	*26*
Central nervous system	4	*2*	6	*3*	9	*5*
Psychological illness	3	*1*	24	*13*	27	*14*
Eye diseases	—	—	15	*8*	15	*8*
Malignant disease	5	*3*	37	*20*	40	*21*
Strokes	2	*1*	26	*14*	28	*15*
Diabetes	1	—	8	*4*	9	*5*
High blood pressure	4	*2*	27	*14*	31	*17*
Other	2	*1*	17	*9*	19	*10*

In some cases more than one relative was affected per respondent and table X shows a summary of the reported instances of family history.

Thus, of a total of 405 reported instances of family history, only 36 (nine per cent) were found to be recorded in the patients' records. Estimates of the potential importance or otherwise of given items of family history must necessarily be somewhat arbitrary. An attempt was made to identify as 'important' these instances of reported family history where there might be good grounds for assuming that the possession of such information would be likely for genetic or psychological reasons to be helpful in the management of the patient whose relatives were so affected. These (admittedly arbitrary) criteria were applied to the instances of reported family history in this survey, not recorded in the patients' own records, with the undernoted results:

1. *Respiratory system:* In this section the instances of asthma (excluding the reported cases of 'asthma' in respondents' children) were considered to be important. Similarly, the two reported instances of tuberculosis where the relative concerned had died under the age of 40 were accepted. This gave a total of 14 'important' instances out of a possible 72.

2. *Cardiovascular system:* The items accepted in this section as important were those of coronary heart disease—both coronary thrombosis and angina. The total here was 44.

3. *Digestive system:* A family history of peptic ulcer was taken as important. The total arrived at in this instance was 38 out of a possible 55.

TABLE X

REPORTED INSTANCES OF FAMILY HISTORY

System or condition	Recorded				Not recorded			
	Parents	Siblings	Children	Total	Parents	Siblings	Children	Total
Respiratory system	—	1	3	4	43	20	9	72
Cardiovascular system	3	2	—	5	50	10	2	62
Digestive system ..	3	—	—	3	37	14	4	55
Central nervous system	2	—	5	7	1	4	5	10
Psychological illness	—	1	2	3	16	17	—	33
Eye diseases ..	—	—	—	—	12	3	—	15
Malignant disease ..	2	2	1	5	32	6	2	40
Strokes	2	—	—	2	26	—	—	26
Diabetes	1	—	—	1	3	5	—	8
High blood pressure	3	1	—	4	27	4	—	31
Other	1	1	—	2	9	6	2	17
TOTALS	17	8	11	36	256	89	24	369

4. *Central nervous system:* Instances of multiple sclerosis and of congenital deafness were accepted as probably of importance—giving a total of six out of ten instances.

5. *Psychological illnesses:* Because of the significant effect that psychological illness in a close relative may have on a patient, as well as the possible genetic factors involved, all 33 instances of psychological illness were counted as 'important'. The reported incidence of family history of psychological illness in the close relatives of the respondents was lower than might have been expected from the general prevalence of psychological illness in the community. This may reflect difficulties on the part of the respondents either in defining or accepting such conditions as illnesses.

6. *Eye disease:* In this section, out of the 15 instances of family history reported, the four instances of glaucoma were accepted as important to record.

7. *Malignant disease:* Although similar considerations obtain with family history of malignant disease as with psychological illness, the 18 instances referring to relatives dying over the age of 60 may be thought to be of lesser importance, so that the total accepted as important was 22 out of 40.

8. *Strokes:* Only two of the instances of strokes reported were accepted here as important—those being of the two relatives who died under the age of 60.

9. *Diabetes:* All eight of the instances of diabetes in a close relative were accepted as important to record.

10. *High blood pressure:* No distinction was made between essential and other forms of hypertension, but since essential hypertension is by far the commonest type of high blood pressure a rough calculation was made that 27 out of the 31 instances of family history of high blood pressure reported might be taken as being important.

11. *Other:* In this section the three reported instances of thyroid disorder, the one instance of pernicious anaemia and the eight cases of locomotor disorder were all accepted as important.

These results can only give a very incomplete picture of the importance of the findings reported. In table XI the totals refer to the number of unrecorded instances of reported family history.

On the basis of these calculations, 57 per cent of the instances of family history reported by patients in this survey, but not recorded in the patients' records, could be considered to be important information, likely to be helpful in the management of the patient.

Documentation

An analysis was made of the amount and nature of the documentation accruing in

the medical record envelopes of the 187 patients who returned completed questionnaires.

Continuation cards

The number of continuation cards present in each medical record envelope was examined (table XII).

TABLE XI

'IMPORTANCE' OF INSTANCES OF FAMILY HISTORY REPORTED BUT NOT RECORDED

System or condition	*'Important'*	*Total*
Respiratory ..	14	72
Cardiovascular ..	44	62
Digestive	38	55
C.N.S.	6	10
Psychological ..	33	33
Eyes	4	15
Malignant	22	40
Strokes	2	26
Diabetes	8	8
H.B.P.	27	31
Other	12	17
TOTALS	210	369

TABLE XII

CONTINUATION CARDS

No. of continuation cards	*Men*	*Women*	*Totals*
One	15	34	49
Two	15	53	68
Three.. ..	9	21	30
Four	5	13	18
Five	2	11	13
Six	—	3	3
Seven.. ..	—	3	3
Eight ..	—	1	1
Nine	—	1	1
Ten	—	1	1
TOTALS ..	46	141	187

The number of continuation cards present in a patient's medical record envelope is dependant on several factors, including the age of the patient and extent of his medical history, the number of doctors with whom he has been registered, and the assiduity with which succeeding practitioners get rid of blank cards. Blank cards are found in the envelopes often by reason of the fact that new continuation cards are issued whenever a patient changes doctor, and, because of a lag in the registration process, if the patient has consulted the doctor before the documents have been forwarded by the executive council, the patient's record with that doctor is often initiated on a separate card which continues to be used after the new continuation card comes to hand in the medical record envelope. In the 187 envelopes examined, a total of 59 blank cards were found in 44 envelopes, distributed as in table XIII.

Kuenssberg (1968) reports a survey of 2,000 records received from NHS doctors, of which 43 per cent had either a blank continuation card or none at all; in the present survey all the records referred to patients who had consulted the doctor at least once and who therefore had some entry on at least one continuation card.

Documents other than continuation cards

An analysis was made of the number of documents other than continuation cards held in the medical record envelopes of the 187 respondents. These included hospital letters and consultants' reports, pathological reports and obstetric record cards. The breakdown is given in table XIV.

Although over half of the records examined contained ten or more documents, the arithmetic mean of the number of documents held in the records of male patients was eight and in the records of female patients thirteen. Marsh and Simons (1967) report average numbers of documents in the records of the practice they examined as four for males and seven for females. These figures seem to indicate that the volume of documents found in the records in this survey are double those found in Marsh's practice; however, Marsh and Simons do not state how they arrive at their average. In the current survey the median number of documents was six for males and ten for females and the

modal values—arrived at by using the formula mode=mean—3 (mean-median), (Hill 1966)—are 2 and 4 respectively.

TABLE XIII
BLANK CONTINUATION CARDS

No. of blank cards	*No. of medical record envelopes involved*
One	34
Two	6
Three	3
Four	1

TABLE XIV
DOCUMENTS OTHER THAN CONTINUATION CARDS

Number of documents	*Number of records*		
	Male patients	*Female patients*	*Totals*
0–4	17	34	51
5–9	12	33	45
10–14.. ..	10	38	48
15–19.. ..	3	10	13
20–24.. ..	1	10	11
25–29.. ..	1	4	5
30–34.. ..	1	2	3
35–39.. ..	—	2	2
40–44.. ..	1	2	3
45–49.. ..	—	2	2
50–54.. ..	—	2	2
66	—	1	1
80	—	1	1
TOTALS ..	46	141	187

TABLE XV
ESTIMATED 'THICKNESS' OF DOCUMENTS

Number of documents filed	*Total thickness (arithmetic mean)*
11	32
12	32
13	33
14	43
15	49

The total number of documents filed does not reflect accurately the thickness of the bundle which accumulates in the medical record envelope. Unfortunately (and this is one of the major drawbacks of the medical record envelope system), the majority of documents received have to be folded once or twice to fit into the envelope. Calculations of thickness were made (ignoring differences of paper quality and thickness) by estimating the thickness of obstetric record cards and letters not requiring to be folded as one, letters requiring to be folded once as two, letters requiring to be folded twice as four and old medical record envelopes filed in the current envelope (astonishingly, three such were found in the course of this survey) as eight. Using this method of calculation the following results were obtained for envelopes containing 11—15 documents (table XV).

Taking the same criterion for 'thickness', and also listing the major pathological entities recorded, table XVI shows the position in respect of the nine really 'fat' envelopes

TABLE XVI
CONTENTS OF VERY 'FAT' ENVELOPES

No. of documents filed	*'Thickness'*	*Pathology*
40	131	Ovarian cyst, oophorectomy
41	149	Depression
42	106	Asthma, duodenal ulcer
45	140	Epilepsy
47	166	Paraplegia, cordotomy, laminectomies, herniorrhaphy
51	165	Diverticulitis, depression
53	196	Asthma
66	195	Epilepsy, laminectomy, rheumatoid arthritis, peptic ulcer, personality problem
80	260	Angina, obesity, depression, cholecystitis, ventral hernia

encountered in the survey—those containing 40 documents or more, in addition to the continuation cards.

These figures represent a considerable amount of documentation and hence bulk in filed records. They do not take into account the occasional destruction that is carried out of material that has only ephemeral interest or that has become obsolete. This 'weeding out' becomes a necessary procedure if filing accommodation is limited, but the process, and more importantly the extraction of relevant information, is rendered difficult and time-consuming by the nature of the bundle of folded papers, often in haphazard order.

Gussetted medical record envelopes

A new form of medical record envelope, with a gusset (similar to a single fold of a concertina file) has recently been introduced by the health departments, in an effort to accommodate some of the growing bulk of correspondence which accrues. These envelopes are now being issued routinely, but provision was made for such envelopes to be available on request for the records of patients where the collected documents were already taxing the capacity of the earlier envelope. In this survey 18 patients had their records filed in the new gussetted envelopes (table XVII).

TABLE XVII

Length of time on list	*Number of patients with gussetted envelopes*
Under 6 months	5
6 months—1 year	4
1—2 years	3
2—5 years	2
5—10 years.. ..	3
More than 10 years	1

For all except one of the nine patients in the table above who had been on the list for more than a year, there were over 35 documents filed in each record.

No medical record envelope

Fifteen of the patients whose records were examined had no medical record envelope filed for them at the time of analysis; in other words, for these patients there was simply a continuation card with any collected correspondence clipped to it. All 15 patients were newly registered (that is they had been on the list for less than six months), and the fact that for these patients there was no envelope reflects the delay inherent in the scheme whereby a patient's records are transferred from one doctor to the next via the executive councils both of the new doctor and of the preceding doctor.

Special signalling procedures

The Royal College of General Practitioners (1964) has pioneered a system of colour-tagging records to draw attention to especially important data (*e.g.* diabetes, epilepsy, tuberculosis). In this system, small tags of coloured paper are fixed to the outside of the envelope, the colour used being based on a pre-determined code, to signal to the user of the record that there is some particularly significant item to be considered. Other special signalling systems are used in individual practices; in this practice, while the College's system is not used, drug hypersensitivities, and sometimes other items of information that should be known to the doctor whenever the record is used, are written in full in the outside of the medical record envelope. Colour-tagging has also been used in this practice for administrative reasons, to distinguish the records of patients in the area of an executive council other than the main one in whose area the vast majority of the patients are registered.

In this survey six of the records examined bore some special signalling device; two of these were tagged according to the RCGP system (both patients had tuberculosis), two were tagged for administrative reasons, one was tagged by a previous user and the

significance was not clear, and one had a drug hypersensitivity recorded in clear on the outside of the envelope.

If the college system had been adopted universally at least 15 records would have been tagged; the records examined included those of five patients who had tuberculosis (either quiescent or cured), four who had hypertension requiring hypotensive therapy, three who were epileptic, two diabetic and at least one patient who was on long-term medication.

Summary cards

Only two out of the 187 records examined contained cards summarizing important information. Both of these were in respect of patients whose previous medical care had been provided outside the National Health Service; one was a patient who had been in the RAF, the other a patient who had been in an orphanage.

Although both the health departments and the Royal College of General Practitioners are prepared to provide special cards for summarized information to fit the medical record envelopes, it is clear that these are not widely used.

Clinical information recorded in letters but not on continuation cards

In the records of 24 out of the 187 patients in this survey it was found that one or more items of clinical information were available in letters filed in the envelope, but not available on the continuation cards.

Family or social history recorded in letters but not on continuation cards

In nine of the 187 records examined, family or social history came to light from perusal of the letters and reports filed in the medical record envelope, where such information was not recorded on the continuation cards.

These items, both of clinical details and of family and social history, are of considerable importance and their value is diminished if they are not available either in the main body of the continuation record or in other ways easily accessible, as they are not when they are only contained on letters which are folded and tucked away, sometimes along with many others.

No records previous to joining list

The medical record envelopes of 73 patients (39 per cent of the sample of 187) contained no records made by practitioners other than those working in the practice under consideration, and had no letters or reports sent to such doctors. Table XVIII shows the distribution of these records in relation to the time the patient had been on the list and to the number of previous doctors with whom the patient had been registered.

TABLE XVIII

NO RECORDS PRIOR TO PATIENTS' JOINING LIST

Time of list	*Number of previous doctors*						
	0	*1*	*2*	*3*	*Four or more*	*Not traced*	*Totals*
0—6 months	1	1	1	6	3	4	16
6 months—1 year	—	—	—	—	—	1	1
1—2 years	—	—	—	—	—	—	—
2—5 years	—	3	—	—	3	3	9
5—10 years	1	4	2	2	—	—	9
More than 10 years	18	13	1	4	1	1	38
TOTALS	20	21	4	12	7	9	73

The high total in the group of patients who had been registered with the practice for less than six months reflects the fact that in many of these cases the records would not have had time to have gone through the process of transfer from the previous doctor via the executive councils. The other high scoring group is of those patients who had been with the practice for more than ten years, and in many of these instances it may well be that the patient had had little need to consult a doctor prior to joining the list (the patient who had had no previous doctors and who had only been on the list for less than six months was a missionary recently returned from Africa who had therefore not previously been under the Health Service).

Letters only previous to joining list

In 29 cases (15 per cent of the sample of 187) the patients had had some contact with their previous doctors, as evidenced by the inclusion in the medical record envelope of letters and reports sent to these doctors, but no entries had been made on the continuation cards. These instances are shown in table XIX in relation to the time the patient had been on the list and to the number of previous doctors with whom the patient had been registered.

TABLE XIX

LETTERS ONLY IN RECORD PRIOR TO PATIENTS' JOINING LIST

Time of list	*Number of previous doctors*						
	0	*1*	*2*	*3*	*Four or more*	*Not traced*	*Totals*
0—6 months	—	—	1	—	—	—	1
6 months—1 year	—	—	1	—	—	—	1
1—2 years	—	2	—	—	—	—	2
2—5 years	—	1	1	3	2	—	7
5—10 years	—	5	4	2	2	—	13
More than 10 years	—	3	1	1	—	—	5
TOTALS	—	11	8	6	4	—	29

Miscellaneous material

One of the drawbacks of using an envelope in which to store records is that it rather easily becomes a repository for unwanted material. In one of the records examined in this survey a letter was found about a patient who was in no way connected with the individual whose records were being examined; in another, part of an unused prescription pad came to light. Other "finds" made in the routine use of records not in the survey but during the period of analysis have included a Wintrobe tube and a ballpoint pen.

Discussion

The sample

Apart from a disproportionate weighting in favour of younger married female patients, the sample exhibited a reasonable diversity in terms of age, length of time on the list of the practice, number of doctors, and presenting complaints. Indeed, it is calculated that the records examined represent the recording practices of an aggregate of over 300 practitioners on the medical histories of 187 patients.

Personal details

In general the recording of name, age and address was found to be accurate, but there was a fairly marked deficiency in the recording of civil status. This is in large part due to defects in design of the outside of the medical record envelope, a defect which has been partially remedied in the latest amended form (EC5B and EC6B), although a further

amendment to provide for date of change in status would be desirable.

The recording of occupation or employment was found to be poor, and this was especially so in the case of female patients working part-time. Part of the difficulty here lies in the frequent change of occupation found amongst these patients, but this difficulty does not excuse the lack of systematic enquiry by the doctor, whenever the opportunity arises, of the patient's occupation, and the noting of this information on the medical record. This is a small but important point which might well be stressed by those responsible for training the younger generation of general practitioners.

Clinical data

In the great majority of cases the patient's own serious illnesses were well recorded, although in the case of operations the recording was not so complete. In several instances information about operations (as well as, in some cases, details about the patient's family history) was available in hospital letters but not incorporated in the main body of the notes, on the continuation cards. This is information which is available, but not easily accessible. The reason for this relative inaccessibility is that with the small envelope form of filing the majority of hospital reports and consultants' letters require to be folded to fit, and documents which are folded are from experience more unwieldy to handle and less easily placed in chronological order than papers laid out flat.

Family history

The results presented in the section on family history above cannot be assumed to record the exact picture of morbidity in close relatives of the patients whose records have been studied. Rather, they represent the patients' own understanding and memory of family history. It is unlikely that patients would invent, though they may well misinterpret, items of family history, but it is certainly possible that they might forget, or indeed never know, instances which could be of great relevance. These reservations do not invalidate the conclusion that only one-tenth of the items of family history which could be elicited from patients are recorded in the patients' own records.

It would require extremely sophisticated techniques of enquiry and analysis to determine how significant isolated instances of family history of disease might be to the patient himself, or how knowledge of such history would contribute to the management of that patient's current problems.

There are a number of classical familial disorders which follow simple Mendelian laws, such as autosomal dominant traits (neurofibromatosis, Huntington's chorea), autosomal recessive traits (phenylketonuria, cystic fibrosis), intermediate inheritance (thalassaemia, sickle cell disease) or sex-linked inheritance (haemophilia). However, there are many much commoner conditions in which a familial incidence can be established, probably caused by the interplay of a number of mutant genes conferring on the individual a predisposition to the disease rather than the disease itself (Richmond 1966). Examples of such conditions include peptic ulcer, hypertension, diabetes mellitus, pernicious anaemia and rheumatoid arthritis. Recording of family history in these areas is clearly of importance, but it is reasonable to extend the history to encompass all serious illnesses in close relatives.

The primary purpose of the medical record should be to provide the doctor with information which will aid him in the management of his patient and the solving of the immediate problems that are presented to him. In other words, the record should provide a link or bridge between the patient within his environment of family, social history and past morbidity experience, and the doctor who is looking after him. The record exists to enable and promote the establishment and re-establishment of the relationship between patient and doctor which is central to the provision of all medical care.

The pattern of the patient's family illnesses may often establish valuable clues about

the patient's own predispositions to various types of hereditary or partially hereditary disease, and the predictive value of such clues may aid screening procedures and heighten the index of suspicion. It is clear in clinical practice that the patient's knowledge of a severely disabling or fatal condition in a close relative (especially if that relative was affected or died in early adult life) can induce profound anxiety, and therefore it is of importance to the physician to know of such instances. There are occasions when the serious illness of a close relative, particularly where there is a dependant relationship, constitutes a considerable source of environmental stress to the patient.

Walford (1955) has written that it is rather astonishing that the family history to which so much time is devoted in hospital record keeping, should be virtually ignored in the records of the general practitioner to whom the family is all-important. He also remarks in another paper (1955a) that family history is even more difficult to carry in one's head than personal history, because it so often relates to people with whom one has no personal interest, and that it is therefore all the more important to write it down where it will be seen, because surprisingly often it provides the missing clue.

Peterson *et al* (1956) in their study of general practice in North Carolina found that "physicians did know many of their patients quite well from the sociological aspect" although the physicians' knowledge of some of the clinical details about their patients was found to be lacking. What is not clear is whether Peterson *et al* considered family medical history to be part of the 'sociological aspect', or part of the clinical picture.

Jungfer and Last (1963) in their paper reporting an examination of general practice in Australia found that the sample of doctors they interviewed did not get adequate information on the family and past history of their patients—an opinion which was based in part on a perusal of these doctors' clinical records.

There can be little doubt that systematic records improve the standard of practice, and that the present medical record envelope system in the National Health Service militates against system. In respect of family history, it is not immediately apparent how systematic recording can be easily introduced and encouraged. Walford (1962) advocates the use of the back of the record envelope, or of a special summary card; he does not usually take a formal family history, but collects information on family history as it arises during consultations over the years. Kuenssberg (1964) has introduced the 'F' book, a ledger system of recording family morbidity (or more precisely morbidity within households) using numerical coding techniques based on the International Classification. Watson (1967), Williams (1967) and Jameson (1968) have all described their own methods of constructing family morbidity indexes or family record cards. The practice run by the Department of General Practice at the University of Edinburgh use household record cards (Scott 1950), while folders holding the records of all members of a family living in one household in the same file are used by some practices (Backett and Maybin 1956, Bristol Local Health Authority 1967).

Walford's method has the merit of simplicity, although it has been pointed out that the problem of putting down family histories on each patient's record in daily practice is a tremendous undertaking (Eimerl and Laidlaw 1969). In the current survey not one of the 187 records examined bore any family history recorded in this way; the family history that was recorded was only to be found in the midst of day-to-day records of diagnosis, therapy, certification and other details. The 'F' book is a splendid tool for research (Sklaroff 1963), but Williams (1967) thinks it is rather cumbersome for routine use and Marinker (1969) has pointed out that it cannot be used for recording a great deal of the morbidity that we see . . . because we have not yet invented a scientific language in which to make the recording. In the hands of the enthusiast the 'F' book and other methods of recording on family registers and indexes provide valuable data for patient management and research, but enthusiasts tend to be in the minority; in another survey (Cormack 1970) it is shown that out of 167 general practitioners randomly

selected in Scotland, only three keep any form of family morbidity register.

The response to the questionnaire administered in this study indicates a potential method of obtaining a good deal of information, especially about family history, previously unrecorded. In the future it is proposed that a similar questionnaire should be given to patients newly joining the list in the author's practice and that data collected in this way will be entered on special cards prepared for the purpose to be filed in the patients' records. This, however, will simply be considered to be an interim measure until a generally more satisfactory method of record keeping has been evolved and introduced.

Documentation

Letters and reports. The great value of hospital letters and consultants' reports lies in two main features: First that reports (perhaps especially those which emanate from general medical and from psychiatric departments) often contain a good deal of useful information in summarized form. Secondly, such reports and letters are almost invariably typed and are thus more generally legible than the practitioner's usual handwritten notes on the continuation cards.

There is a hierarchy of usefulness in any collection of filed reports and letters; for instance full discharge summaries after an inpatient admission may be very useful, while follow-up reports may have use for only limited periods of time, and handwritten discharge notes given to the patient to take back to his own practitioner with simply brief indications of current therapy, while very useful at the time, are in the nature of things ephemeral documents. The decisions about when to destroy documents, and what documents to destroy, are by no means clear cut. The Tunbridge Committee classifies documents in hospital medical records as primary, secondary and transitory (Central Health Services Council 1965), but these grades are not easily applied in general practice. In another study it is shown that 44 per cent of 167 general practitioners questioned do not make a practice of destroying unwanted documents in the medical record envelopes; of the 56 per cent who do, only a few do so routinely (Cormack 1970).

The difficulties lie not only in decisions about the relative usefulness of the documents, but also in the unwieldy bundle of folded papers. The figures in this study show 49 per cent of the 187 records studied contained ten or more (and in some cases substantially more) documents, excluding continuation cards. The majority of these documents have to be folded at least once to fit the envelope, and a great many of them twice or more. Two suggestions have been made which might help to solve this problem. The first is made by the Walker Committee on Hospital Medical Records in Scotland, who advocate the use by hospitals of a special paper size (4.5 in. x 7 in.) for reports and letters to be sent to general practitioners (Scottish Health Services Council 1967). The second suggestion, made by Marsh and Simon (1967) is that practitioners should file all reports chronologically, holding them together by treasury tags. In the records examined in this study at any rate, neither of these suggestions would appear to have been adopted in more than a few instances.

In the vast majority of instances letters are folded and filed in more or less indiscriminate order in the envelope and attempts to extract information from them is all too often both time-consuming and irritating. It seems clear that the only sensible way to overcome this manifest inefficiency is to provide folders (not envelopes) sufficiently large to hold the majority of reports and letters unfolded.

Continuation cards. The continuation cards (EC7 and EC8) are the documents on which the general practitioners record their own notes. Ideally, these cards should provide an on-going record of the patient's medical history, and should form the basic source of information which the letters and reports simply supplement. The cards are designed to fit the envelopes, they are reasonably stiff and quite easily extracted. How-

ever, the manner in which individual practitioners record data is almost infinitely varied, and in the absence of some defined and accepted system it is difficult in many instances to disentangle diagnosis, therapy, family and social history and circumstantial narrative.

The notorious illegibility which afflicts the medical profession (perhaps fostered by the niggardly size of the documents on which many of them are required to write) compounds the difficulty, and the presence of blank cards (found in 24 per cent of the records examined in this study) only serves to increase the lack of order. The simple expedient of underlining or 'boxing in' all major diagnoses (Hodgkin 1963) certainly helps to make the record more coherent and provides a valuable summary (the absence of special summary cards has already been noted), but until some basic agreed methods of recording are evolved, more space provided and provision made for separating out different classes of information, the general run of records will remain haphazard and often confusing.

Conclusion

The documents used for medical records in general practice in the National Health Service are shown to be ill-adapted to their potential optimum use. What was satisfactory in 1920 is, not surprisingly, far from ideal today. There has been and continues to be a considerable increase in the amount of communication which passes about patients; increasingly more can be done and is being done in the provision of medical services. The 'fat files' of patients with histories of any complexity contain a wealth of information which is not always used as it should be because of difficulties in extraction consequent on lack of summaries and lack of order among letters and reports which have to be folded to fit the envelopes which hold them.

It emerges clearly that in the records of family doctors, family history is in general poorly recorded. To improve the situation, better training is required, but training itself is not enough and a fundamental reform is indicated in the type of documents used for recording. An essential part of such a reform must be the provision of means to separate out different categories of information, so that data on family and social history and such items as blood groups and hypersensitivities can be simply recorded and easily found, apart from the day-to-day recording of the details of individual consultations. To do this with the present medical record envelope system is not impossible, but it is certainly not easy.

The two simple features of the medical record envelope which combine to impede efficient recording techniques are the type of holder and its size. The envelope, open at one end only, should be replaced by a folder which can open out and display its contents by the simple turning of pieces of paper rather than requiring its constituent documents to be extracted and unfolded for inspection. Cards of approximately 8 in. x 5 in. encourage cramped writing and illegibility; the majority of letters and reports which are filed in this size of envelope require to be folded and are thus rendered relatively inaccessible. The size of an efficient folder should be governed by the principle that the majority of correspondence received should be accommodated without the need for folding. It is probable that the international paper size A4 (8.25 in. x 11.75 in.—210 mm x 297 mm) would meet this criterion.

Difficulties and deficiencies in the field of recording in general practice are becoming increasingly apparent, and some of these have been measured in this study; there is an almost exponential increase in the amount of communication which passes about patients, and the development of newer and more sophisticated forms of data recording is proceeding apace. In the light of all these considerations the time has surely come for those who are responsible for the formulation of policy with regard to general medical services within the National Health Service to look afresh at the whole question of general

practice medical records.

Summary

Information in the records of a sample of 187 adult patients in the author's practice, representing the recording habits of over 300 different practitioners, was compared with information elicited from these patients by means of a questionnaire. Data was also obtained about the amount and nature of the documents collected in these medical record envelopes. The study revealed a generally poor level of recording of family and social history, and it is suggested that this is related both to lack of training in record-keeping and especially to the unsuitability of the medical record envelope as an efficient tool for the purposes it is required to serve.

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