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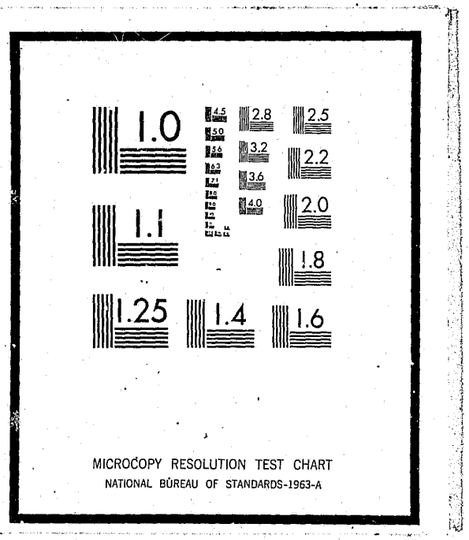

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Dorset & Bournemouth Constabulary

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TIME FOR UPDATING

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A Paper on Some Aspects
of Police Organisation
by
H. GREEN
T/Assistant Chief Constable

TIME FOR UPDATING

THE PRIMARY OBJECTIVE

The primary objective of the current organisation of the Dorset and Bournemouth Constabulary is to create a base from which it will be possible to use police manpower to optimum effect. In order to achieve this initial aim, four fundamental principles of organisation have been observed.

1. Any organisation of manpower should have a clearly defined single chain of command and control, particularly when the work force operates in a fluid environment where decisions have to be taken frequently and quickly.

2. Command and control of field operations can only be carried out to optimum effect by management totally committed to the operations, with constantly updated knowledge concerning all matters relating to them.

3. Lines of communication must be purpose built so as to meet, in the most effective manner possible, the needs of the operational organisation they serve.

4. In order to be efficient in any organisation, whether it provides a product or a service, management must have available to it comprehensive facts relating to the business in which it is engaged and be able to evaluate, objectively, its own efficiency.

The Police organisation created by adhering to these principles is different from any other in the country, even allowing for the fact that it is specifically designed for a relatively small County-type Force. It is the product of eight years of research and development.

COMMAND AND CONTROL

One of the actions necessary to organise within the four principles was to ensure that no-one at Force Headquarters of equal or lesser rank than divisional commanders would have authority to command or control operational personnel in divisions. To accomplish this meant altering structures which had existed for many years. The fact that these alterations are considered necessary in the interests of efficiency at this time in no way infers that command appointments in the former structure were not appropriate at the time they were made.

At the time of review, the senior officers at Headquarters who had authority to command and/or control divisional personnel were as follows:-

Detective Chief Superintendent
Detective Superintendent
Traffic Chief Superintendent
Traffic Superintendent
Control Room Supervisory Officers

Criminal Investigation Department

Over the years the head of the C.I.D. in County-type Forces has always been at Force Headquarters. There is no doubt about the necessity of having top level management at headquarters to provide for organisation, policy formulation and direction of operational personnel, including the C.I.D. on a Force basis. The person most appropriate, and presumably appointed, to fulfil this function is the A.C.C. Operations. He has the necessary rank and should have the necessary expertise for the purpose.

Command and control of operational C.I.D. officers is essentially a field command and can only be effe ctively carried out by a senior detective officer constantly involved in and updated by events related to crime, criminals, the area of operations and all persons concerned. Heads of C.I.D. in County-type Forces inevitably have one foot in Force C.I.D. management and one in vicarious command and control of divisional C.I.D. officers. The divisional commanders also have command and control of divisional C.I.D. officers. With the current volume of crime and criminal activity it is impossible for Heads of C.I.D. to keep constantly updated on events to provide for effective day to day operational command and control. Having regard to these facts and the obvious undesirability of having operational officers under dual command, it was decided to include the command and control of operational C.I.D. officers within the divisional command structures and to assign to it, in each division, a Detective Superintendent who would be fully operational with absolutely no 'paper' responsibilities whatsoever. This latter aspect is explained later in connection with divisional organisation. The effect of these proposals is that they eliminate dual command of C.I.D. operational officers, accord the Force management function with regard to the C.I.D. to the appropriate rank (A.C.C. Operations) and place operational command of C.I.D. officers under a detective senior officer totally committed to field command.

Traffic Branch

A great deal of what has been said in relation to the C.I.D. is applicable to the Traffic Branch; it is essentially a field command. It should certainly not incorporate the operational support functions of vehicle maintenance or communications. In 1967 both these functions were placed under civilian management in the Dorset and Bournemouth Constabulary in order to provide the qualified expertise and continuity necessary for efficiency and to relieve operational traffic officers of non-operational duties. By applying the accepted principles (page 1) to traffic operations in the field it was clear that they had to be incorporated within the organisation of divisions. The senior officer assigned

to the command of the Traffic branch in each division is a Superintendent, and, as with the C.I.D. Superintendent, his is a total field command without any 'paper' responsibilities.

Force Control

Prior to the re-organisation, a function within the former Traffic Chief Superintendent's command was the operation of the Force Control Room. The so-called Force Control, in keeping with most others in County-type Forces, had never facilitated total command and control of the Force but, until the introduction of UHF radio facilities in divisions, it had been the only method of providing immediate and co-ordinated command and control in response to emergency calls for service. It was the only radio control facility in the Force and it fulfilled a vital role. It was necessary, therefore, to have a Control Room staff and to place it within a command structure based at Headquarters; the one most suitable was considered to be that of the Traffic Division.

The advent of UHF radio facilities in divisions, however, transformed the position but did not prompt any operational changes in relation to dealing with emergencies. All '999' calls continued to be received at Force Control despite the fact that more resources with the necessary local knowledge and follow-up potential were immediately available to divisions on UHF radio. Conversely, divisional control rooms could not make contact with any VHF vehicles, not even their own, except on 'talk-through'. Every '999' call had to be relayed by telephone to the appropriate division to enlist the services of personnel on UHF radio. There were occasions when VHF vehicles were sent by Force Control to incidents already being dealt with by UHF control. The whole position was most unsatisfactory.

The decision to discontinue command and control from Headquarters by officers of equal or lesser rank than divisional commanders meant that all operational units operating in territorial divisions would come under divisional command structures. Re-designing communications to meet these operational changes resolved the communications problems inherent in the previous command and control structure. It was recognised that at least 99% of operations occurring within territorial divisions are local in character. There was no justification, therefore, under the new organisation for a Force Control Room to be maintained on a day to day basis provided Force command and control could be established at a minute's notice. This has been made possible and, paradoxically, by discontinuing 'Force Control', control of the whole Force, VHF and UHF, has been made possible for the very first time. It can be achieved from either divisional control room as explained in the chapter on communications. All '999' calls in each division are directed to the appropriate divisional control room.

Headquarters

In the light of the proposed changes in command structure, the police functions at Headquarters were reviewed. Since 1967 all administrative functions had been under a civilian Chief Administrative Officer and police functions fell under two distinct headings : (1) Police personnel, discipline, training and research, and (2) Operations. No changes were made in the staff of the former but in respect of Operations, 2 Chief Superintendents and 2 Superintendents, formerly exercising command and control of police personnel carrying out C.I.D. and traffic duties in territorial divisions, were assigned to territorial divisions. The headquarters staff function relating to all operational matters was assigned to a Superintendent. The total number of police personnel of all ranks on the current Headquarters establishment, including the Chief Constable and his two Assistants, is 13. This represents 1.3% of the total strength of the Force. The national average appears to be about 4.4%.

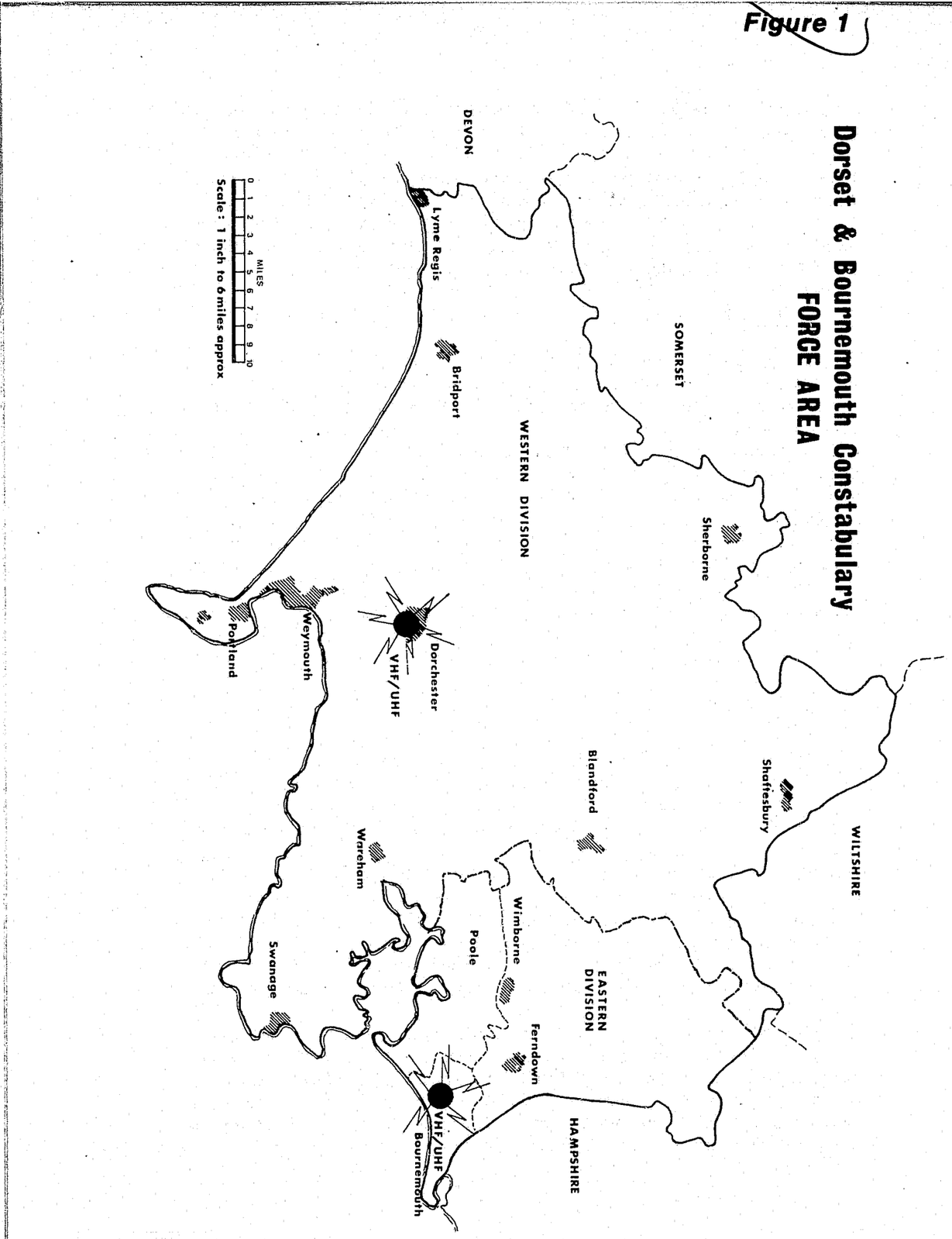
Divisional Territories

One of the most important decisions made in connection with the re-organisation was that in relation to the size and boundaries of the divisions. It was considered to be of the utmost importance that divisions should, if possible, comprise areas of affinity in a general sense as well as in respect of police problems; crime, criminals, traffic flow etc. It was vital that '999' calls for the whole of each division should be directed to the respective divisional control rooms where facilities would be available to command and control all resources (VHF and UHF) in the division. It was also desirable to conform with petty session divisional boundaries. With these clearly defined major requirements in view, the conclusion was reached that there could be only two divisions. The larger in terms of population comprising the boroughs of Poole and Bournemouth and the surrounding territory, and the larger in terms of area the remainder of the Force territory to the West, see Fig. 1. The resident population of the eastern division is in the region of 300,000 with a summer population over 1 million. The western division has a resident population of about 250,000 which increases at least three-fold in summer.

Divisional Command and Control

The respective police establishments of the divisions are 569 in the eastern division and 380 in the western division. If the proposals for local government re-organisation come into effect, it is likely that the eastern division will have a police establishment in the region of 700. This raises the question of the appropriate rank for the divisional commander, because the establishment is well in excess of the maximum 450 recommended for the Chief Superintendent rank. It seems to be sensible that ranks should fit operational organisations and not the other way round. In the case of the eastern division, therefore, it would seem that a rank or appointment of Commander is required. These operational circumstances must apply to many provincial forces throughout the Country and appears to indicate that a rank, or an appointment with an appropriate allowance, of Commander should be available to them. In order to provide flexibility for Chief Constables an appointment with allowances would seem to be the better

Figure 1



proposition. It would be against the principles of efficient command to assign an Assistant Chief Constable to any such division, or group of divisions.

In the current experimental organisation existing ranks have been used and a Chief Superintendent (H.G.) appointed in each division as divisional commander. His command comprises three distinct functions : Operations, Staff and Administration. Operations and Staff are each under the command of a Chief Superintendent and Administration is headed by a civilian.

(1) Operations

In organising the divisional operations structure it appeared vital to provide constant field co-ordination of all three operational branches. It is a remarkable fact that although the three branches operate cheek by jowl, with the inevitable overlapping of duties and interaction, there has never been a field command post totally committed to co-ordinating their efforts. It was decided to create such a post and a Chief Superintendent Operations was appointed to provide the necessary field co-ordination and to foster co-operation. The fact that the move introduces a sound step of experience towards the qualification for higher rank was also recognised. The three operations branches, Uniform, C.I.D., and traffic, under the command of the Chief Superintendent - Operations, are each commanded by a Superintendent. None of these senior officers, nor the operational personnel under their command, has any routine responsibility for reading files or making recommendations upon them; these functions are assigned to Staff.

(2) Staff

The staff function in each division may be described simply as the processing of, and decision making in relation to, all paper work generated by operational police personnel. It is designed to relieve operational supervisory officers in each of the three branches of the task of reviewing files and reports and making recommendations upon them. This does not relieve any operational supervisory officer of his or her normal function of advising, or giving instructions with regard to requirements in connection with any arrest or report, or checking with the officers under his or her command to ensure that the necessary action has been taken. It nevertheless clarifies the management function of operational supervisory officers and has the effect of releasing them from the task of reading reports and files.

An experiment to evaluate the merits of confining staff functions to a small number of specialist supervisory officers was carried out in the then Eastern (Bournemouth) division of the Force from 1970 to 1972. Briefly, all paper work generated by operational personnel (except C.I.D. in the experimental period) was sent direct to the Sergeants Staff at the divisional headquarters. There were 5 Sergeants covering 16 hours per day.

They checked files and reports for content and standard; any deficiencies in the paper work were referred back under the Staff Superintendent's signature to the submitting officer's supervising officer in order that he should be aware of shortcomings in any of his officers' work and so that he could provide the necessary supervision to ensure that resubmitted reports met the requirements. The Sergeants Staff also kept a constant check on the submission of reports.

Depending on the nature of the reports or files, the Sergeants Staff submitted them to the appropriate place for action; the Divisional Commander, Superintendent Staff, Process, Civilian Administration, Prosecuting Inspectors etc.

This experiment proved to be an enormous success. Apart from achieving the basic aim of relieving operational supervisory officers of office work, it created a recognised standard in report compilation and caused a remarkable reduction in the time taken for reports to travel from the submitting officer to the senior officer authorised to make a decision. The staff function is now incorporated into each divisional organisation and deals with the paper work generated by all three branches of the Force. In the Eastern Division the staff complement comprises : 1 Chief Superintendent, 1 Superintendent, 4 Prosecuting Inspectors and 9 Sergeants. The Western Division comprises : 1 Chief Superintendent, 1 Superintendent, 2 Prosecuting Inspectors and 3 Sergeants. In each case there is a direct link with the police authority solicitors in respect of Magistrates' Court work and in the Eastern Division their offices are on the same floor.

Before the re-organisation the percentage of the authorised police strength assigned to purely operational police work, i.e., without responsibilities for reading files and making decisions and recommendation was 82.4%. It is now 96.6%.

In connection with the implementation of the organisation, levels of recommendation, and decision were identified, they are as follows:-

LEVEL 1	(i)	Cases reportable to the Director of Public Prosecutions
	(ii)	Cases of importance, e.g. of political nature or involving a local authority
CC	(iii)	Cases affecting Force policy
DCC	(iv)	Extremely difficult cases
ACC	(v)	Cases in which serious allegations have been made against the Police
	(vi)	Cases affecting the reputation of any police officer or police service
	(vii)	Death by dangerous driving cases
	(viii)	Other cases where the Chief Constable's decision is necessary or considered necessary

LEVEL 2	Decisions	
	(i)	Cases of considerable local interest
CH. SUPT. i/c DIVISION	(ii)	Cases of difficulty referred by Chief Superintendent Staff
	(iii)	Objections to the grant of Licences under the Licensing or Betting, Gaming and Lotteries Acts.
	Recommendations	
	Must be made in Level 1 (ii), (iii), (iv), (v), (vi) and (viii) but not in (i) or (vii) categories unless the nature of the case is such that the Chief Superintendent i/c division considers it necessary or the Chief Constable requires a recommendation from him.	

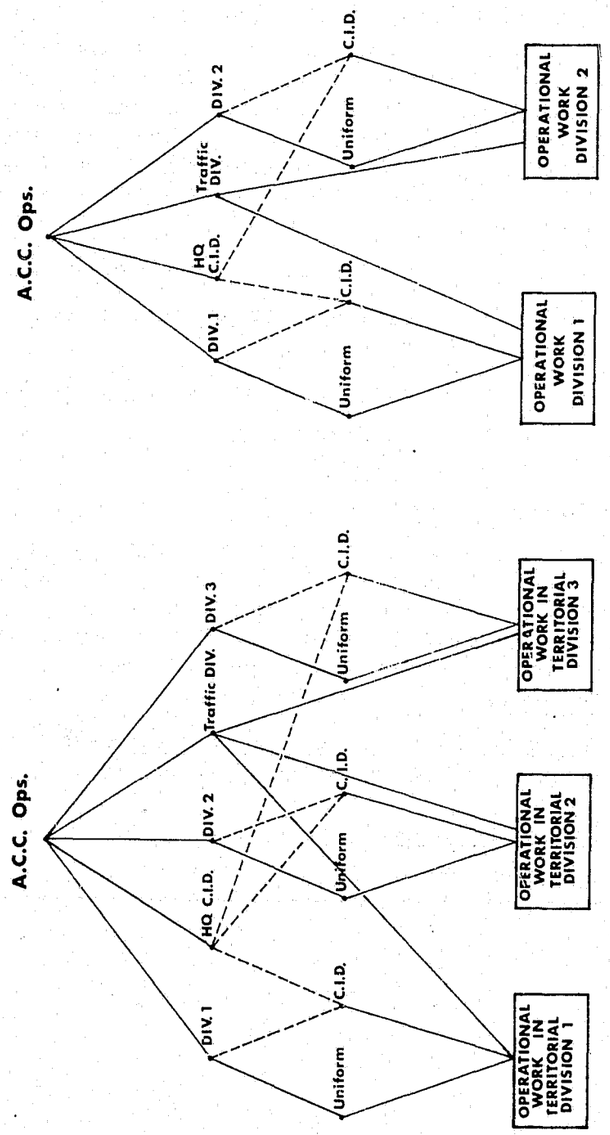
LEVEL 3	Decisions	
	(i)	Serious criminal cases not in Levels 1 and 2
CH. SUPT.	(ii)	Cases of crime recommended for caution
STAFF	(iii)	'No crime' applications
	(iv)	Cases of difficulty referred by Superintendent Staff
	(v)	Licensing, Betting, Gaming and Lottery cases
	(vi)	Drug offences
	(vii)	Public Order cases
	(viii)	Firearms offences
	Recommendations	
	Cases in Levels 1 and 2 but where the Superintendent Staff has made recommendations re Levels 1(i) or (vii) or 2 (i), there is no necessity for the Chief Superintendent Staff to make a further recommendation unless one is called for in his view or on the direction of the Chief Superintendent i/c of the division.	

LEVEL 4	Decisions	
	(i)	Traffic cases other than death by dangerous driving
SUPT.	(ii)	Criminal cases other than those referred to in Levels 1, 2 or 3
STAFF	(iii)	Summary offences not within Levels 1, 2 or 3
	(iv)	Cautions for summary offences not within Levels 1, 2 or 3
	Recommendations	
	Level 1(i) or (vii) may be made direct, through the Divisional Commander, to the Chief Constable and Level 2(i) may be made direct to the Divisional Commander. Any case in Level 4 which he considers should be submitted to the Chief Superintendent Staff.	

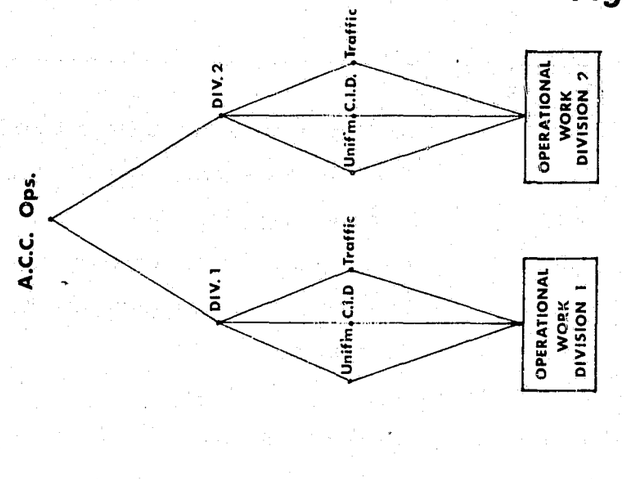
LEVEL 5	Decisions	
	All traffic cases, except death by dangerous driving, dangerous or careless driving, Level 4(iii) cases.	
PROS. INSP.	Recommendations	
	All Level 4 cases	

Figure 2

OPERATIONAL COMMAND & CONTROL
FLOW COMPARISON



BEFORE REORGANISATION



PRE-REORGANISATION
FLOW WITH TWO DIVISIONS

AFTER REORGANISATION

Comment on Command

The elimination of fragmented command and control of divisional officers does not decentralise Force command or control in any way. Command as a whole is unified from top to bottom, is more direct and Force command, in theory and in practice, is firmly in the hands of the Chief Officers at Headquarters. This is clearly illustrated in Fig. 2.

It has already been mentioned that the re-organisation has been carried out on an experimental basis using the ranks which already exist. It is evident that some adjustment of ranks will be necessary.

RURAL AREA POLICING

Suffice it to say under this heading that the rural area policing which has been in operation in the Force since 1970 is part of the overall organisation. Basically, teams of rural officers operate with vans out of Section Stations in order to give better overall coverage of rural areas and continuity of action 7 days a week. The matter is dealt with more fully in an article which was published in the Police Review on the 1st January 1972.

COMMUNICATIONS

The communications system has been specifically designed to meet the needs of the police organisation. In view of the fact that the application of data (non speech) transmission by radio was first introduced to policing by the Dorset and Bournemouth Constabulary, it naturally follows that it forms an integral part of the total system. The idea for using data transmission occurred to me in 1967 as a means of updating vehicle locations and providing management data; it was then researched by Digital Systems Ltd., of Cosham, Hampshire who produced the first police coded tone generator. Recognition of the event was given to the Force in the United States in 1969 when it received an Award from the International Associations of Chiefs of Police and American Express Company for 'outstanding contributions to the field of International Police Science and Technology.'

Data transmission is by no means the only modern technological feature of the current communications system and much credit is due to the Home Office Telecommunications Directorate for their encouragement and help in this connection.

Radio Communications

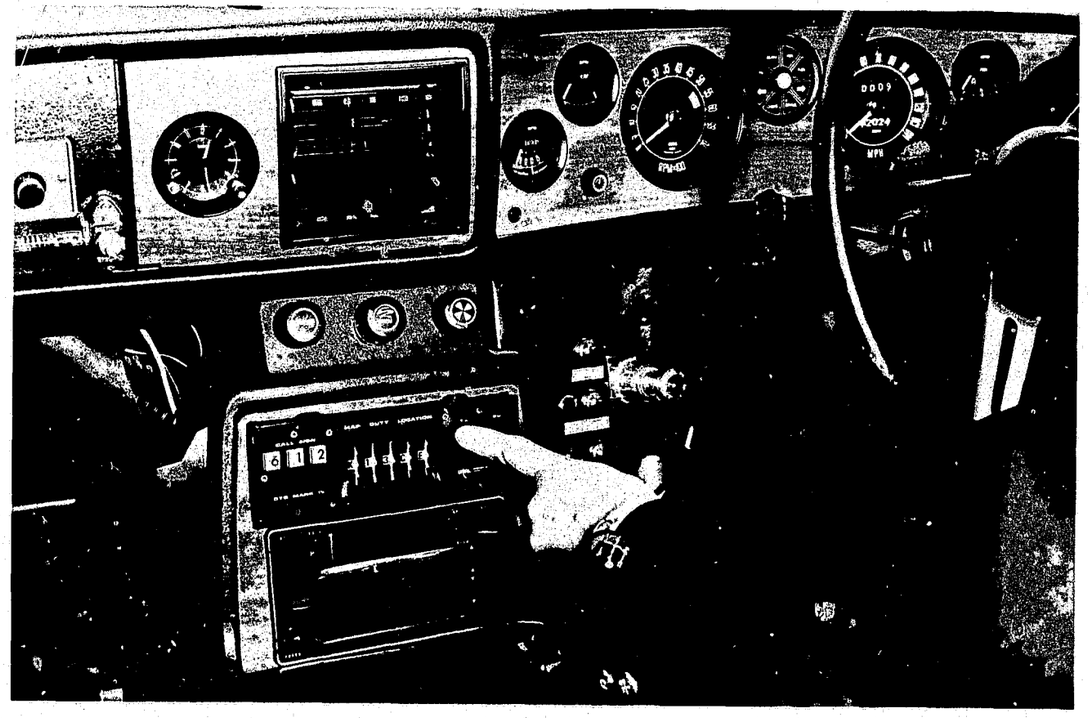
The organisation of the radio communications is simple. Each of the two divisions has a Control Room and each has facilities for direct communication with all units, VHF and UHF, within its territory. In the Eastern Division the VHF/UHF integration is provided by a 20 Channel Pye 'Mascot' unit and similar facilities will be provided in the Western Division in 1973.

In the smaller towns in the Western Division the daytime radio control of the one or two constables on duty lies with the Station duty officer but at night, when these

stations are unmanned, or when for some reason direct control from divisional headquarters is necessary, control is transferred to the divisional control room by land line links. The two control rooms are linked so that total Force Control VHF/UHF can be achieved from either Control Room, depending on the centre of operations and, as explained later, each Control Room staff can see the current deployment and availability of the other by two types of display terminals, wall maps or visual display units.

Data Transmission from Vehicles

Traffic, rural and Panda vehicles with VHF radio are fitted with coded tone generators (see photo) by which data relating to the call sign and type of vehicle, its location and the duty of the crew is transmitted to the Control Room. The call sign which includes coding for the type of vehicle, is automatically included in every transmission and the other data is set up by the crew with thumb wheel switches specially designed for use with gloved hands. Transmissions are activated by the pressing of a green button which then becomes illuminated; it is extinguished when the system at the Control Room end has checked that a full message has been received and sends back a signal to this effect to the vehicle transmitting which switches off the green light. This takes only a fraction of a second. If the crew presses the green button whilst the 'air' is engaged (red button light on), the green light goes on and the coded tone generator holds the message until the 'air' is free and then transmits the message of its own accord. This saves the crew having to stay with their vehicles until the 'air' becomes free before they can give their duty and location. In an emergency, even though the 'air' is engaged, the crew can press the red button which will indicate to the control room that the officer(s) in that vehicle is in an emergency state and wants the 'air' cleared so that he can speak to Control.



Transmitting duty and location by coded tone generator

The system reveals that the average hourly rate of changes of duty and/or location in the eastern and western division is about 41 and 33, respectively. If transmitted by coded tone generator, the time taken in either case would not exceed one minute. To transmit the reports by speech at a rate of one every 12 seconds would take about 8 and 6 minutes, respectively. This would be about 13.3% and 10% of hourly 'air' time as opposed to about 1.5% in the case of coded tone generator transmissions.

UHF Data Transmission of Duty and Location Reports

Reports of locations and duties of officers equipped with UHF radios are currently sent by speech but data transmissions have been achieved, on an experimental basis, through UHF personal radios. The Home Office Telecommunications Directorate are currently assessing the feasibility of data transmission from personal radios.

Control Rooms

A view of the Eastern Division Control Room is shown in the photograph on the cover . There are eight consoles in the Control Room, one in the Collator's Office and one in the Command or Viewing Room. Each console is numbered and may be dialled from a CTG in a car. This is particularly useful to the Collators who can turn their VHF radio down and are only alerted in respect of calls for them by a crew dialling their console number from a car.

Each console has a selective intercommunication and there is a Lamson document tube intercommunication between the teleprinter room, all console positions and the collator's office.

The room itself is air conditioned, has a stand-by generator and computer flooring.

Collator's Office

In each division, the collator's office adjoins the actual Control Room and is part of the Control Room complex. The office has its own console and VDU with VHF/UHF radio links and intercommunication, speech and documentary, with each Control Room console. It is also the office in which the Police National Computer terminal will be situated, so that all enquiries on persons, vehicles, etc., whether local or national, will be channelled through the appropriate staff. The advantages of this arrangement are apparent, not only from the correlation of information viewpoint but because of the undesirability of burdening the Control Room operators with the function of operating PNC terminals.

Input of Data to the System

Data transmissions from vehicles (VHF) are automatically decoded, sent to a core store (in the basement) which stores the information, updates the locations and duties of the vehicles on the display units, prints a hard copy of each transmission on the appropriate console and punches the information on to paper tape for subsequent computer input.

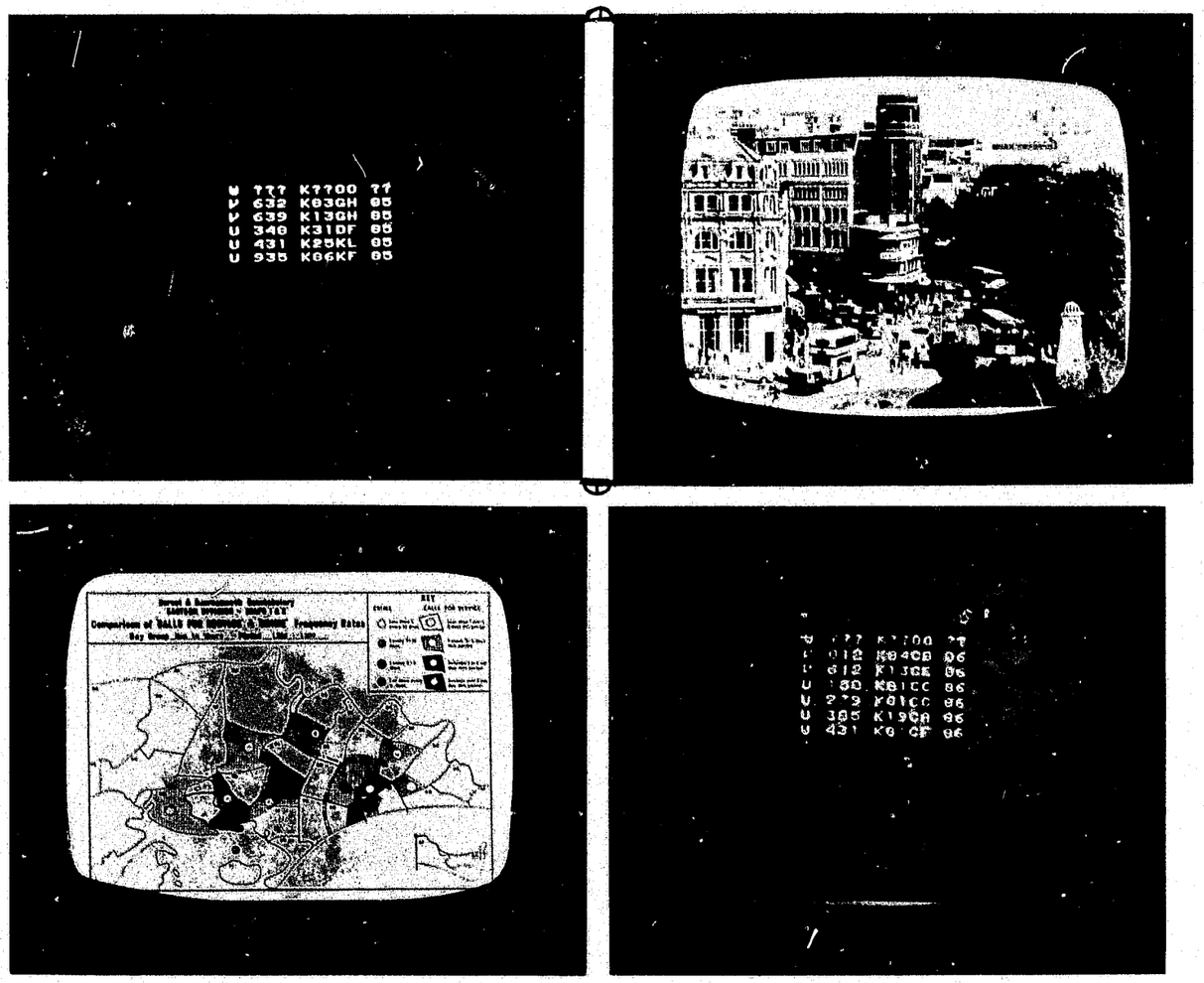
Console operators input the speech (UHF) transmissions of identity, duty and location via their keyboards and the automatic cycle of operations as described in relation to VHF data transmissions take place.

Display Units

As stated earlier, there are two types of display terminal in each control room. The wall map display shows the deployment of uncommitted foot and mobile resources throughout the division and in the adjoining territory of the other division; green lights indicate a foot patrol and blue light mobile units. Resources en route to, or in position at, checkpoints are shown by pulsating red lights and steady lights respectively.

The visual display units on each console are DSL multi-purpose terminals. The duty and location of any individual operational officer can be shown whether he is out on duty, at Court, in an office, etc. The identity, duty and location of all resources, committed and/or uncommitted can be shown for any sub-area, strip road, mobile area, checkpoint, police station, section, etc. It is expected that when area locations are interrogated to show resources available to deal with an incident, a street map of the area will be displayed, simultaneously, on to the VDU screen. The method, which is still in the experimental stage, could also display computer produced historic data on calls for service and crime for the appropriate day/period in map form, on the screen.

U 1



Examples of displays on D S L multi-purpose visual display units

Burglar Alarms

Although commercial burglar alarms terminate on the Home Office approved panels, they are not situated in the Control Room. Notification of activation of an alarm is given in an alpha/numeric display on each console. The display, capable of showing three alarms at any one time, gives the area reference and also the code number of the premises. By interrogating the area reference, the resources in the area will be displayed on the VDU. The street map of the area, which it is intended will be displayed simultaneously, will show the location of the protected premises.

No. Not yet. To be link up completed this financial year.

Telex and Teleprinter

There are Telex facilities in the Western Control Room where the staff have a responsibility for inter-Force communications. Each division has its teleprinter network and the two are linked to provide total Force communications. Both divisions have Post Office experimental systems; the eastern division has a concentrator network and T.P.15 terminals with selective and broadcast switching facilities and the western division network operates with shared lines and selective switching facilities for remote Sections in order to reduce line costs.

MANAGEMENT DATA

In 1964 the (then) Dorset Constabulary became the first police force in the country to embark on a quest for a computer base of management data. In some respects it owes its origin to the introduction of Unit Beat Policing. As an interim measure UBP appeared to be a well thought out extension of the traditional beat system and the additional transport and communications which attended its introduction were most welcome. What was disturbing, however, was that the system, as a system, was apparently looked upon as being the ultimate in policing. In my own view the basic approach to the use of manpower was wrong. To apply a general system devised from a limited amount of information itself of a general nature, to all cities, towns and areas throughout the country with vastly different problems did not seem to be the most efficient way to organise manpower to optimum effect. To do so without making provision for automatic evaluation was also a major defect. It appeared necessary as a first step that there should be a comprehensive data base related to all aspects of operational policing in respect of every city, town or area to be policed. In addition, there should be facilities for analysis and evaluation. It appeared that only then would it be possible for Chief Constables and all levels of management under their respective commands to be in a position to make the best use of their resources.

It appeared evident from discussions which took place at that time that no research was in being or in prospect anywhere in this Country to devise the means for organising in this way and subsequent events have shown this assumption to have been correct. In view of the situation which existed, I recommended to my Chief Constable, Mr. Arthur Hambleton, O.B.E., M.C., Q.P.M., that some effort should be made to achieve the necessary data base. He shared my views, and a start was made with the willing help of the Dorset County Council Computer Section.

By 1966, crime and traffic accidents were on computer file organised to show them by period of day, day of the week and location. It became evident that facts relating

to events only were insufficient and that it would be necessary to obtain all the facts regarding the assignment and deployment of police personnel and other matters affecting operational policing. An attempt to require all operational police officers to supply this information by manual recording was a failure because of the time it consumed and the error rate.

This failure provided the stimulus for producing the data transmission idea to which I have already referred. The innovation was incorporated into the system so as to provide for resource allocation from the Control Rooms and the management data input. The format which satisfied both needs comprises : call sign of vehicle (which incorporates type) or Force number of officer, location and duty.

Locations

Initially, locations consisted of a primary letter, relating to a town or large rural area, and two-letter grids. The grid was preferred at that time because it was more convenient in terms of system design but it became increasingly clear that there was an overwhelming case to identify locations with matters affecting policing, viz., affinity in respect of area, traffic flow, social factors, etc., all of which had the added advantage of easy identification for the operational personnel and all levels of management. It was also clear that the type of location must be related to the type of duty. As a result, the locations by which the duties are now notified and recorded are as follows:-

Location	Type of Duty
Sub-Area	Foot patrol and all duties except those referred to below.
Mobile Area	Patrols by Panda cars, section and Rural vehicles.
Strip Roads	Patrols by traffic vehicles and all police activity on the strip roads by traffic personnel.
Police Stations	Report writing or dictating, dealing with prisoners, Court and different types of 'off duty'.
Checkpoints	Checkpoint duty.

The method of identifying the locations remains the same : a primary letter and a two letter location. There are 141 different locations in the eastern division and 189 in the western; all locations have a unique reference.

Duties

Duty categories are divided into six : foot, mobile, calls for immediate service, other 'outside' duties, other 'inside' duties directly connected with operations and types of 'off duty'. The full list is shown below.

UNIFORM PATROL OR PREVENTIVE DUTY	UNIFORM IMMEDIATE SERVICE	UNIFORM OTHER OPERATIONAL DUTY
01 Foot	11 Crime	19 Crime Enquiries
02 Uniform Obs. (including radar checks)	12 Public Order	20 R.T. Acc. Enquiry
03 Checkpoint	13 R.T. Accident	21 Other Enquiry
04 Panda Foot	14 R.T. Incident	22 Moving Traffic Offence (incl. radar reports)
05 Pedal Cycle	15 Susp. Incident	23 Other Offence
06 Rural Mobile	16 Other Acc. or Inc.	24 Traffic Control (incl. School Crossing)
07 Traffic Patrol	17 Domestic Dispute	25 Checking Unocc. Prem.
08 Panda Mobile	18 Other Imm. Service	26 Collecting and Delivering
09 Harbour Patrol		27 Other Ops. Duty
10 Other Mobile		28 Arrest of and dealing with prisoners
		29 Escort Duty (within 8 hour tour of duty)
		30 Court (within division)
		31 Office (other than Station duty)
		32 Off duty - meal break
		33 Off duty - to non-op. duty
		34 Off duty

Information on duties is automatically captured on paper tape as a side benefit of the command and control aspect of the communications system. Other information relating to duties, e.g., number of officers on duty in each Section, with absence and abstraction details, is taken from source documents completed in Sections.

Crime and Traffic Accidents

Information on crimes of the type potentially preventable or detectable by patrols is taken from source documents. The locations are given by sub-area.

Information on injury accidents is extracted from a modified Stats 19 form. Non-injury accident particulars are taken from a single line entry record kept in divisions; it is confined to location, day of week and period of day. Accidents occurring on strip roads are given strip road locations, all others are recorded by sub-area locations and class of road.

Computer Output

The management data is produced in a variety of tables and maps, each designed to give management at all levels a factual picture of events, police activity, use of manpower and the relationship between workforce and workload under a wide range of conditions. Most of the output is produced for 7 periods of the day and three groups of days. The day groups are : Monday - Thursday; Friday and Saturday, and Sunday. The periods are 0600 - 0900; 0900 - 1200; 1200 - 1400; 1400 - 1800; 1800 - 2200; 2200 - 0200; 0200 - 0600.

Where necessary, e.g., for the workload/workforce comparisons, the tables are produced for every hour of the day.

(i) Duties by Locations

For every location, i.e., mobile area, sub-area, checkpoint and police station in each Section, and every strip road in each Traffic sub-division, the monthly output of duties is shown by period and day group. This is illustrated in a specimen computer print-out reproduced below. Fig. 3. In order to assist explanation, the number of figures has been kept to a minimum by selecting the afternoon period (1400 - 1800 hours) in the Monday to Thursday day group for a very small Section comprising the country town of Wimborne and a single rural area. The area code of the town is DA, the three reporting areas in the rural area DB, DC and DD, respectively, and the police station code is PH.

It will be seen from the headings of the print-out, that in respect of the amount of time spent on each duty during this period and day group, the average and maximum is shown for each location. The number of days when no duties of any individual code and/or group of codes were performed is shown against the side heading 'D/NIL'. Print-outs for each section by period and day, or day groups, are produced in five categories. Taking the foot and mobile duty categories (codes 01 - 10) together, in the following specimen, it will be seen that during the afternoon periods in April little foot patrol (01) was carried out in the town (DA) and very little foot duty by Panda drivers (04) in comparison with the time spent on Panda patrol (08). The number of days in April in the 1400 - 1800 hours period for this day group when no foot duty was carried out (D/NIL) in the town was 10 out of a total of 16 Mondays - Thursdays in the month. Mobile Panda duty was carried out on all 16 days during this afternoon period. The time spent on some form of patrol duty was about 60% of the total duty time of operational officers for the period.

Figure 3

SECTION: WIMBORNE MAP: D 1400 - 1800 MONDAY - THURSDAY APRIL

FOOT & PREVENTIVE DUTIES

LOCATION		TIME SPENT ON DUTIES 01	02	03	04	05	TOTAL D/NIL	NUMBER OF DUTIES 01	02	03	04	05	TOTAL	NO. OF CRIMES KNOWN	PROB.
DA	AVE	210			46			1			6		7		1.5
	MAX	210			99										
	D/NIL	15			11		10								
DB	AVE	20						2					2		
	MAX	38													
	D/NIL	15					15								
DC	AVE	35						1					1		
	MAX	35													
	D/NIL	15					15								
DD	AVE	45						1					1		
	MAX	45													
	D/NIL	15					15								
TOTAL		5.29	00	00	4.34	00	10.05	5			6		11		1.5

MOBILE DUTIES

LOCATION		TIME SPENT ON DUTIES 06	07	08	09	10	TOTAL D/NIL	NUMBER OF DUTIES 06	07	08	09	10	TOTAL
DA	AVE			27						38			36
	MAX			140									
	D/NIL												
DB	AVE	46						10					10
	MAX	107											
	D/NIL	08					08						
DC	AVE	45						8					8
	MAX	92											
	D/NIL	10					10						
DD	AVE	57				10		25				1	26
	MAX	256				10							
	D/NIL	00				15	00						
TOTAL		37.36	00	17.19	00	.10	54.55	43		38		1	82

It will be noted that the foot duty table makes provision for showing, on the right hand side, the known and probable crime totals for each sub-area location. The crimes are those of the type potentially preventable or detectable by patrols. It will be appreciated that, in many cases, it is not possible to state that a crime occurred within a specific period of 2, 3 or 4 hours; in such cases crimes are apportioned by a probability formula. As indicated in the specimen, crime frequency rates during the afternoons in rural areas are generally very low.

In view of the fact that preventive patrols of a general, as opposed to specific, nature are invariably organised by periods of the day and in relation to sub-areas, or beats, the statistics on crime frequency rates are produced for each period and sub-area. More often than not, subjective assessments of crime frequency rates, per beat per period, are often exaggerated when

the only statistics known are those related to days, months or years for sections and divisions. The following example may assist in illustrating the point. Let it be assumed that, as with the eastern division of this Force, a division has 30 sub-areas, or beats, of an urban character and, in terms of crime frequency rates, there are three groups of 10 sub-areas, each group having a constant frequency rate in each sub-area, as follows.

Beats	
1 to 10	An average of .1 of a crime per sub-area per period (or 1 every 10 days) = 1 crime per period for all 10 of this group and, assuming 7 periods per day, a total of 7 crimes per day.
11 to 20	An average of .2 of a crime per sub-area per period (or 1 every 5 days) = 2 crimes per period for all 10 sub-areas of this group and, assuming 7 periods per day, a total of 14 crimes per day.
21 to 30	An average of .3 of a crime per sub-area per period (or about 1 every 3.3 days) = 3 crimes per period for all 10 sub-areas of this group and, assuming 7 periods per day, 21 crimes per day.

At the crime frequency rates shown above, the average total daily crime for the division would be 42 giving an annual total of crimes potentially preventable or detectable by patrols of 15,330. Assuming that 80% of all crimes are in the preventable and/or detectable by patrol category, the total annual crime for the division would be about 19,162. This can be related to the annual crime total for the eastern division of this Force which is about 15,000. It is appreciated that in a practical situation there would be large fluctuations of crime rates for different sub-areas, periods and days of the week, but it should be remembered that these would work both ways, down as well as up. In any event, without the facts, the position would be impossible to assess.

In print-out tables relating to 'Calls for Service" (duty codes 11 - 18), the maximum number of officers required to deal with any emergency and the average and maximum response times are shown for each sub-area. In the

specimen print-out overleaf, (Fig. 4) the general duties table (duty codes 19 - 27) shows that a total of 25 hours 51 minutes was spent on various duties. The 'inside duty' table (duty codes 28 - 31) shows that on 13 out of the 16 days in this day group during April, operational officers spent some duty time in the police station. On average, the time spent in the station on each duty was 61 minutes and the total time 16 hours 10 minutes.

The information referred to above touches on some of the facts revealed in respect of one small section for one period of the day and one day group in a month. It is considered to be the sort of data that police management at all levels should have available as a matter of course in order to provide a continuing picture of some of the facts relating to policing and police work. It is only a practical proposition, however, if the facts can be obtained as an automatic spin-off of a command and control system.

(ii) Manpower Assignment and Commitments

In respect of every Section in the Force, the work force to work load relationship, together with related statistics, is shown for every hour of each day of the week in histogram form. Fig. 5 is an example of a print-out in respect of the Boscombe Section showing the average hourly position from midnight to 1900 hours (top headings) in relation to every Thursday in the month of April. The vertical scale on the left hand side represents the time in hours. In each column of the histogram there are groups of four numbers. The top left hand number of the group, i.e., 01, 06, etc., represents the first code number of a duty group, e.g., 01 refers to the foot group, 06 to the mobile group, etc. The number on the top right hand side of the group of four shows the number of minutes to be added to the hours shown on the vertical scale. The two bottom numbers represent : on the left, the maximum number of officers engaged at any one time during the hour in the duty group and, on the right, the minimum number of officers so engaged.

Figure 4

CALLS FOR SERVICE

LOCATION	TIME SPENT ON DUTIES 11	12	13	14	15-16	17	18	TOTAL D/NIL	NUMBER OF DUTIES 11	12	13	14	15	16	17	18	TOTAL	MAX.NO.OF OFFICERS	RESPONSE AVE	MAX
DA AVE	17								1								1	1	04	04
MAX	17																			
D/NIL	15							15												
TOTAL	17	00	00	00	00	00	00	17	1								1	1	04	04

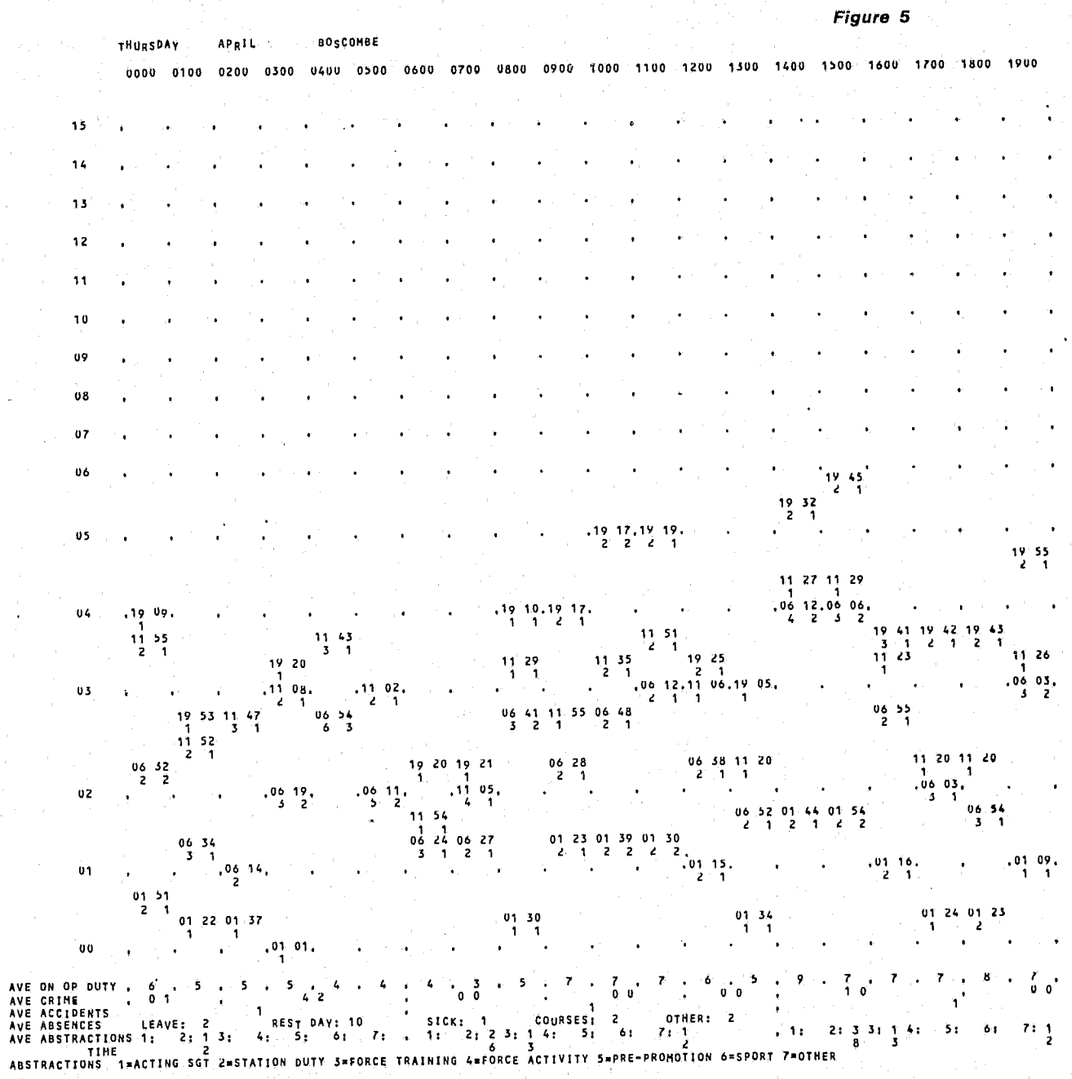
GENERAL DUTIES

LOCATION	TIME SPENT ON DUTIES 19	20	21	22	23	24	25	26	27	TOTAL	NUMBER OF DUTIES 19	20	21	22	23	24	25	26	27	TOTAL
DA AVE	23	9	39				120	13			7	1	6				2	2		18
MAX	96	9	87				202	20												
D/NIL	11	15	10				14	14		03										
DB AVE	17										1									1
MAX	17																			
D/NIL	15									15										
DC AVE										104									1	1
MAX										104										
D/NIL										15										
DD AVE	48		80				34	54	45		2		3			3	1	2		11
MAX	56		170				58	56	89											
D/NIL	14		13				13	15	12	11										
PH AVE								44										4		4
MAX								110												
D/NIL								12		12										
TOTAL	4.34	09	7.54	00	00	1.43	4.56	4.51	1.44	25.51	10	1	9			3	3	8	1	35

INSIDE DUTIES

LOCATION	TIME SPENT ON DUTIES 28	29	30	31	TOTAL	NUMBER OF DUTIES 28	29	30	31	TOTAL
PH AVE				61					16	16
MAX				300						
D/NIL				03	03					
TOTAL	00	00	00	16.10	16.10				16	16

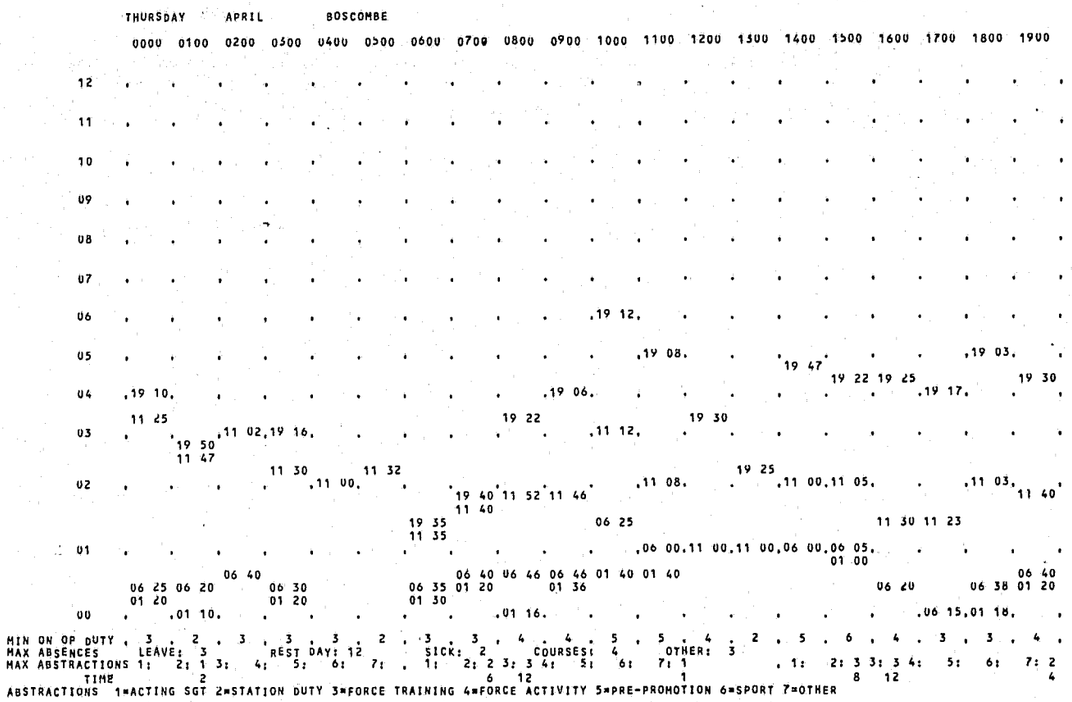
Figure 5



The statistics beneath the histogram relate to the work force availability (by day), absences (by day), abstractions (by tour), the average crime totals, known and probable, (by period) and traffic accident totals, injury and non-injury, (by hour).

It will be seen from Fig. 5 that, on average, there were no foot patrols between 0400 and 0800 hours but there were uncommitted mobiles during this period, sometimes as many as 6 during the course of an hour. Fig. 6 shows the position which would obtain under the worst combination of circumstances during the same period, day, etc., and it reveals no uncommitted patrols between 0400 and 0600 hours or between 1200 and 1400 hours. It also shows that as many as 3 officers were assigned to Force training during the 0600 - 1400 hours tour of duty.

Figure 6



These are a few of the many facts revealed in the histograms and it would be very unwise to draw any conclusions by looking at them in isolation. Nevertheless, they give an indication of the type of data which is available as a basis for objective assessment in relation to the use of manpower which should be of great benefit to police management.

(iii) Strip Road Policing

For every one of the 71 strip roads in the Force area, there is a computer print-out, showing for every period and day group, the patrol by traffic personnel. The average, maximum and minimum patrol in minutes is given in respect of motor cars and motor cycles for each road and the number of moving traffic offences (MTO) reported. The number of accidents, injury and non-injury, and all other duties performed by traffic officers on each strip road are produced in other print-outs and correlated. Work is proceeding with the view to relating all this data to traffic density and speed rates. The object being to provide a comprehensive data base for evaluating controlled experiments in which changes of emphasis would be applied to those variable factors capable of being regulated.

The statistics referred to above are produced monthly on the ICL 1904A computer of the Dorset County Council. They are distributed down to those levels of management which it is considered would be better able to do their work by having access to them. In some cases this would be to Section Level.

THE FUTURE

The system design makes provision for development. There will undoubtedly be increased two-way data transmission between control rooms and vehicles and data transmission facilities will be provided for personal radios. In addition to the benefits which these developments may bring to operational work, they will help to provide facts of a more detailed nature in respect of operational police activity. It should then be possible to assess costs of individual types of operational police duty and, in view of the fact that the system also provides for controlled operational experiments, it may also be possible to relate the costs to some knowledge of effectiveness.

These possibilities will help to assess many of the features of the total system design which, to date, has attained no more than its primary objective.

END