STUDIES

ON

INDUSTRIAL RELATIONS

INTERNATIONAL LABOUR OFFICE

STUDIES AND REPORTS
Series A (Industrial Relations) No. 33

STUDIES
ON
INDUSTRIAL RELATIONS

I

Siemens Works — Lens Mining Company
London Traffic Combine — State Mines of the Saar Basin
Bata Boot and Shoe Factory

GENEVA
1930

Published in the United Kingdom
For the INTERNATIONAL LABOUR OFFICE (LEAGUE OF NATIONS)
By P. S. KING & SON, Ltd.
Orchard House, 14 Great Smith Street, Westminster, London, S.W.1

REPRODUIT PAR LES PROCEDES DOREL
15 Rue de Tocqueville — Paris XVII'

CONTENTS

THE LONDON TRAFFIC COMBINE

THE STATE MINES OF THE SAAR BASIN

THE BATA BOOT AND SHOE FACTORY

INTRODUCTION

While the International Labour Office has been interested from its establishment in various aspects of the general problem of industrial relations, it was only in 1928 that it was requested by the International Labour Conference to devote special attention to that feature of the problem which is concerned with methods of collaboration between employers and workers. On this question the Eleventh Session of the International Labour Conference adopted the following resolution proposed by Mr. H. H. Champ, Employers' Delegate of Canada, and seconded by the Canadian Workers' Adviser, Mr. R. J. Tallon :

> Whereas it is contended that a policy of active collaboration between employers and employed, such as exists in certain countries, has resulted both in an improvement in the level of real wages and working conditions, and also in greater and more economical production ; and
>
> Whereas the economies resulting from such collaboration can also be made available for the benefit alike of the employers, employed and the community as a whole ;
>
> Therefore be it resolved :
>
> That this Conference requests the Governing Body to consider the advisability of instructing the International Labour Office to follow with due attention the progress of the spirit of collaboration between employers and employed and to report on the subject from time to time.

This resolution was the reflection in the international sphere of the growing attention which had been paid to the scientific study of industrial relations since the war. Much of the impetus to this study was derived from North America, and as a result of his visit to that country in the previous year the Office published a Report by the Deputy-Director on *Industrial Relations in the United States* in 1927. In all the reports, whether official or unofficial, which have been made on American industrial conditions—whether they have emanated from employers, workers or independent observers—stress has invariably been laid on the

importance attached to the relations between employers and workers, particularly in the works, which is now a characteristic feature of American industrial life. Moreover, quite apart from American developments, the whole question of the technique of joint consultation and collaboration between employers and workers has been the subject of a great deal of study and discussion in other countries also. Conferences have been held in Australia, Finland, Great Britain, Netherlands, New Zealand and Sweden, to mention only some of them, sometimes under Government auspices, sometimes on the initiative of employers' and workers' organisations. Another illustration of the same tendency may be found in the creation of the *Reichswirtschaftsrat* in Germany, the *Conseil national économique* in France, and the procedure now established for regular consultation between the representative employers' and trade union organisations in Great Britain. Indeed, the interest in the subject was so widespread that when the Governing Body discussed the Resolution of the Conference in October 1928, it authorised the Office to undertake a fairly comprehensive programme of study.

The aim of the series of monographs on industrial relations, of which this volume is the first, is not to build up any theory or to inculcate any doctrine. Its primary object is to ascertain the actual development of the relations between employers and workers, both in the works and in collective negotiation between representative organisations. This development naturally differs to some extent from country to country, as it must necessarily be largely influenced by the conditions in which industry has grown up, by national habits of thought and other factors of a national character. But it may none the less be found that its general problems are common to all countries and that, despite diversities in method, the attempts to solve them proceed on general principles which are largely similar.

The main purpose of the studies on industrial relations in this volume is to make available some of the extraordinarily valuable experience acquired in actual industrial operation by these firms. It is important both for the management and the workers of industrial enterprises to have accurate and full information as to the actual practice of industrial relations. It is worth while knowing just what is taking place in a few of the

many firms in all industrial countries in which efforts are being made to develop satisfactory relations between management and workpeople. The wider the range of experience covered the more fruitful will be the results of this study.

Two explanations are perhaps necessary as to the scope and purpose of these studies. In the first place, the aim of the Office in making them has not been to secure international comparability. On the contrary, its primary purpose was to study industrial relations in the diverse conditions in which they may develop. The undertakings selected for study were chosen rather as illustrations than as patterns. The examples are therefore taken from a variety of industries and from different industrial countries, without regard to the particular conceptions on which the heads of the undertakings based the organisation of their relations with their staffs. The countries concerned are Czechoslovakia, France, Germany, Great Britain, and the Saar. The industries involved are boot and shoe manufacture, coal mining, electrical equipment, and passenger transport. All of the undertakings are generally recognised as successful representatives of their industries and countries, and many are of world-wide importance.

Secondly, these studies of industrial relations in particular firms do not pretend to be complete or exhaustive. It would have been possible, with the information placed at the disposal of the Office, to have prepared much fuller and more detailed accounts. Every effort has been made to condense the statements in order to include only the relevant facts necessary to a clear description of the anatomy of industrial relations in each firm. By entering into much greater detail, a more minute picture of the inner working of these firms would have been presented, but the essential outlines of the picture might have been blurred rather than sharpened, if surrounded by a mass of interesting but comparatively superfluous minor facts.

When the possibility of making studies of industrial relations in European establishments was first considered by the Office, the view was frequently expressed that it would be difficult to obtain information, both because the management of important industrial undertakings would be unwilling to give permission for such studies to be made and also because of the lack of adequate statistical and other information in the undertakings themselves. The experience of the Office has shown conclusively

that these views were devoid of foundation. The management of all the firms concerned readily granted permission to the Office to send representatives to visit them and to make reports on their systems of industrial relations [1]. It is with their cordial and active assistance that the reports in this volume have been made. In all cases the heads of the firms concerned, or other leading representatives of the management, gave much of their own time to the representatives of the Office and authorised the preparation for them of special memoranda. Access was given to all the documents and records asked for, all the questions put by the representatives of the Office were answered fully and clearly, they were freely allowed to get into touch with representatives of the workpeople, and, in fact, everything possible was done to enable them to obtain the fullest acquaintance with all aspects of the work of the undertakings having a bearing on industrial relations.

The presentation of the results of the study in each firm follows generally similar lines. No attempt has been made, however, to force the experience of the firms into the mould of any rigid schema. In every case the study, after a brief introduction dealing with the general history of the firm, its size, the number of workpeople, its capitalisation, and so forth, deals with the organisation and administration of industrial relations including the internal organisation of the industrial relations department of the particular firm, a history of its relations with the employers' organisations and trade unions, and a description of the works councils or other bodies in operation in connection with the firm. Full information is given with regard to the functioning of the system of industrial relations, the procedure with regard to employment management, training, apprenticeship and education, health and sanitation, accident prevention, pensions, profit-sharing and co-partnership, insurance, savings plans and various forms of welfare activities. In each case special

[1] Those who visited the various undertakings on behalf of the Office were as follows :

The Siemens Works : Mr. O. BACH, member of the staff of the Berlin Office ; Mr. G. A. JOHNSTON, Chief of Section, Intelligence and Liaison Division ; Mr. T. G. SPATES, Industrial Relations Counselors, Inc. — *The Lens Mining Company :* Mr. P. HENRY, Chief of the Employers' Relations Service, and Mr. T. G. SPATES. — *The London Traffic Combine :* Mr. G. A. JOHNSTON and Mr. T. G. SPATES. — *The State Mines of the Saar Basin,* Mr. P. WAELBROECK, Chief of the Editorial Section, and Mr. T. G. SPATES. — *The Bata Boot and Shoe Factory :* Mr. P. DEVINAT, formerly Chief of the Employers' Relations Service.

reference is made to the extent to which the active collaboration of management and workpeople is concerned in the actual organisation and functioning of these various schemes.

As has been already suggested, these firms illustrate great diversity of practice in the matter of industrial relations. In all cases legislation may be said to furnish a broad basis for the practice of industrial relations, but that legislation varies considerably from country to country. If in all cases but one collective agreements play a large part in constituting the framework of industrial relations, the actual characteristics of that framework differ considerably from case to case. Finally, if in all cases the free initiative of the management of the firm is a highly significant element in the situation, that free initiative manifests itself in a wide variety of methods. The practice in each firm would appear to be a progressive development arising spontaneously from the particular conditions in the country concerned and in close connection with the history and traditions of the firm. There is nothing spectacular about industrial relations as practised in any of these firms, but though they are clearly regarded as one of the normal functions of good management, the importance attached to them indicates the part which they play in the general economy of industrial production.

It is not the purpose of the Office in publishing these studies to draw conclusions from them. Each reader will no doubt select for himself the lessons which they suggest. One general observation is, however, likely to occur to the minds of most readers. It is that legislation and collective agreements, however far-reaching in their effects, leave open, for free development by both management and workers, a wide field of constructive activity of vital importance both to day-to-day operations within the individual enterprise, and to the health. comfort and efficiency with which the individual worker is enabled to perform his work.

A second series of studies is in preparation, which will, it is hoped, as far as possible, cover industries and countries not touched in the first series. This second series will include, among others, studies of industrial relations in the Fiat Motor Works, Italy, and the Sandviken Steel Works, Sweden.

No attempt is made in any of these studies to connect experience in the particular firm with the wider background of industrial relations practice in the country as a whole. The study

of the development of industrial relations in particular countries is intended as the subject of the second part of the programme of industrial relations studies, which provides for the publication of a series of monographs on the development of industrial relations since the war in some of the principal industrial countries.

It remains to express our sincere gratitude to the firms which have been good enough to allow studies to be made, and to the members of their staffs who gave their time and energy so ungrudgingly to those who undertook the investigations on behalf of the Office.

Lastly, the Office wishes to place on record its large debt of gratitude to Industrial Relations Counselors, Inc., of New York, for the assistance which it has at all times received in developing its study of industrial relations and, in particular, for the generous financial help which made it possible to carry through the present series of studies and to present the results so promptly.

THE SIEMENS WORKS

The Scope and Character of the Works

The history of the Siemens Works is closely bound up with the history of the electrical industry in Europe. The original firm was founded in 1847 in Berlin by Werner Siemens and Johann Georg Halske, for the manufacture of telegraph apparatus. Halske remained with the firm only 20 years, but the Siemens family has continued to guide its destinies without interruption throughout its long history. Werner Siemens remained at the head of the firm until 1890, when he was succeeded by his eldest son, Wilhelm von Siemens, who managed it until his death in 1919. In that year the youngest son of Werner Siemens, Karl Friedrich von Siemens, undertook the direction of the Siemens Works as Chairman of the Supervisory Boards both of Siemens and Halske and of the Siemens-Schuckert Works, positions he still holds to-day. For over eighty years, therefore, the firm has been directed by two generations of the Siemens family.

The history of the firm may be divided into six periods. The first period, from 1847 to 1852, was a time of gradual development from slow beginnings, culminating with an annual turnover of only some 300,000 marks. The second period, from 1853 to 1857, saw the first international development of the Siemens Companies through the establishment of the Russian Telegraph Company. The third period, from 1857 to 1869, witnessed the rapid growth of the firm's activities outside Germany. The English Cable Company was founded, a cable was laid from Carthagena to Oran, and the Indo-European telegraph line, linking Berlin, Moscow, Teheran and India, was laid. The fourth period, 1869 to 1885, was specially marked by the rapid development of the headquarters of the Company in Berlin; overseas activities also developed, however, and it was in this period that the Trans-Atlantic cable was laid. The fifth period,

1885 to 1903, saw a very rapid financial development of the Companies, not only in Germany but abroad. New inventions in the field of electro-technics, especially as regards high tension work, were made or adapted, and by 1900 the annual turn-over had reached 84 million marks. It may by noted that in 1899 the first factory was built at Siemensstadt. The sixth period extends from 1903 to the present day. In 1903 the Siemens-Schuckert Works were founded through the amalgamation of the high-tension department of Siemens and Halske with the Schuckert Works in Nuremberg. The development of the firm in this period was marked by the specialisation in low-tension work of Siemens and Halske, resulting in the rapid growth of low-tension technique which followed the institution of the automatic and induction coil telephone, and also the progress of radio technique ; meanwhile the Siemens-Schuckert Works made steady advance in the production of high-tension apparatus and in long-distance transmission, and generally promoted the rapid adoption or extension of the use of electrical power in connection with numerous processes. By the end of 1929 the annual turn-over of the Siemens-Schuckert Works had reached 550 million marks and that of Siemens and Halske 300 million marks.

The two firms of Siemens and Halske and the Siemens-Schuckert Works are closely associated along three lines. In the first place there is association from the point of view of capitalisation of the Companies. The firm of Siemens and Halske, with a total of 107.09 million marks of share capital, is in part a manufacturing company and in part a holding company. The Siemens-Schuckert Works is almost entirely a manufacturing company, with a total share capital of 120 million marks. Of this capital, 61.90 millions are held by Siemens and Halske, and 58.10 millions by Schuckert & Co., a pure holding company with a share capital of 60 million marks. The three firms of Siemens and Halske, Siemens-Schuckert and Schuckert & Co. all have certain financial interests in a variety of other companies, which it is not necessary here to detail.

The second line of association between Siemens and Halske and the Siemens-Schuckert Works is of a personal character. Dr. Karl Friedrich von Siemens is Chairman of the Supervisory Board of both Companies. The Financial Director of both companies is the same person, and the same persons exercise other important functions in both Companies.

In the third place, there is administrative connection between the two Companies, which possess a considerable number of common central departments. The following departments, for example, are common to both firms : Industrial Relations Department, Economic Department, Legal Department, Building Department, Patent Department, Fire Protection Department, the General Secretariat, etc. Further, the greater number of the Works of both Companies are closely associated geographically at Siemensstadt.

The Works of Siemens and Halske are at Siemensstadt, Gartenfeld, Vienna, and Milan ; those of the Siemens-Schuckert Works are at Siemensstadt, Nuremberg, Mühlheim, Vienna, Müglitz, Bratislava, Budapest, and Cornella. Branch offices of both Companies are to be found in most of the countries of the world.

The main products of the two firms are as follows : Siemens and Halske produces automatic and manual telephone systems of all kinds, telegraph apparatus, audible, visible and recording signalling systems, all kinds of electric cells and batteries, aero-engines and internal combustion engines for agricultural purposes, land, overhead and submarine cables and accessories, telephone-repeater installation, safety and time-service installations, including all types of electric alarms, syrens, clocking-in apparatus, traffic-signalling devices and so on, electric measuring instruments of all types, such as indicating and recording instruments for current voltage, power-factor frequency resistance and insulation measurements for switchboard, workshop and precision use, experimentory and laboratory equipment, thermal-measuring instruments of all kinds for indicating, recording and metering, water meters for all duties in public and private water-works, electro-chemical plants, such as electric smelting furnaces and high-frequency furnaces for use in all foundries and in various branches of the heavy chemical industry, ozone plant for deodorising, sterilising, purifying, and so forth.

The main products of the Siemens-Schuckert Works are the following : Construction of complete power stations and overland power stations, converter and transformer stations, cable and overhead transmission lines as well as their entire equipment with machines, apparatus and all accessories, plants and drives for all industries, crafts and farms, electric equipments and fittings for ships, electric railways and tramways of all descriptions for main and side lines, urban and suburban railways,

elevated and underground railways, works railways, steam turbines, steam accumulators and superpressure steam plants, cable and wiring materials of all descriptions, electricity meters, lighting plants, house-wiring, "Protos" household appliances and devices, electric cooking and heating apparatus, vacuum cleaners, floor polishers and other domestic machines, electric tools, electric welding machines, electrical dust precipitation plants, industrial electric furnaces and heating plants, fans and pumps, electric trucks and tractors, rubber goods and insulating materials for industrial purposes, search-lights, flood-light projectors, motor-boats and ferries with electric drives, rotary tillers, and irrigation plants.

It will be seen that the main distinction between the field of activity of Siemens and Halske and Siemens-Schuckert is that Siemens and Halske is mainly concerned with the manufacture of low-tension appliances, while the Siemens-Schuckert Works are mainly interested in the production of high-tension apparatus, from heavy machine construction down to small household apparatus.

In general, individual works, either at Siemensstadt or elsewhere, are specialised for the production of particular articles; for example, in the case of the Siemens-Schuckert Works, the Dynamo Works at Siemensstadt manufactures large motors, while the Nuremberg Works produces medium-sized motors and the Elmo Works small motors. The Switch Works at Siemensstadt, a remarkable building twelve stories high, produces medium and large-sized switch apparatus. The Cable Works at Siemensstadt manufactures cables and lines, the Neuhaus Works porcelain, and so forth. The Siemens Bauunion at Siemmensstadt, a separate associated Company, is responsible for underground construction of all kinds, concrete and reinforced-concrete constructions, construction of hydro-electric plants, pressure conduits and penstock pipe lines, tunnels, barrages, dams and weirs, locks, docks, underground railways, railways, bridges, water supplies and sewage disposals for towns and industries, ground-water lowering, and well-boring.

Finally, to close this brief introductory account of the scope and character of the Siemens Works, something must be said of the financial results of the Companies. The capitalisation in share capital has already been indicated. The turn-over of the whole concern in 1928-1929 was 945 million marks. In that

year over one-third of the sales of Siemens and Halske were made abroad. The following table gives figures for the last four years of the net earnings of Siemens and Halske and the Siemens-Schuckert Works, and the dividends paids on the shares of Siemens and Halske and the Siemens-Schuckert Works respectively :

	1925-26	1926-27	1927-28	1928-29
Net earnings, in million Reichsmarks	32.42	34.02	32.50	37.50
Dividends :				
Siemens and Halske	10 %	12 %	14 %	14 %
Siemens-Schuckert	8½ %	9 %	10 %	10 %

The Organisation and Administration of Industrial Relations

It is obvious that no single form of industrial relations would suffice to cover the wide diversity of conditions under which the operations of the various factories of the Siemens combine are carried on in various parts of Germany and abroad. In this report no attempt will be made to explain the administration and functioning of industrial relations in any of the Siemens factories outside Siemensstadt, for the visit of the authors of the report was limited, at their own request, to Siemensstadt. It is in Siemensstadt that are situated both the headquarters of the firm and the works employing the majority of its workers. And it is in Siemensstadt that all the characteristic features of industrial relations in the Siemens Combine are to be found.

Of the total staff of over 138,000 employed by the Siemens Companies, over 76,000 work in Siemensstadt. The following table indicates by occupational category and geographical locality the division of these totals into their component parts[1].

[1] These figures relate to the end of September 1929.

STAFF OF THE SIEMENS COMPANIES

Group	Salaried employees	Wage-earning workers	Total
Greater Berlin	22,184	54,495	76,679
Nuremberg	2,518	8,439	10,957
Other firms in Germany	7,450	16,463	23,913
Total for Germany	32,152	79,397	111,549
Outside Germany	8,979	17,651	26,630
Grand Total	41,131	97,048	138,179

Siemensstadt lies in the north-west of Greater Berlin, 10 kilometres from the centre of the town, and spreads into the districts of Charlottenburg and Spandau. Its situation is so beautiful that it has been called "The industrial city in the greenwood" *(Industriestadt im Grünen)*. To the north, south and west forests and parks extend uninterruptedly. To the south the ground is bordered by the river Spree. The Siemensstadt Works are closely concentrated in these attractive surroundings. From the summit of the clock-tower of the Werner Works or from the top of the twelve-story Switch Works, Siemensstadt presents a picture of unusual architectural homogeneity and beauty. This geographical concentration of the Works at some little distance from the main centres of population of Berlin, while it undoubtedly has many advantages, also involves certain difficulties. The main difficulty arises in assuring satisfactory transport facilities for the workers. Of the total staff employed at the Siemensstadt Works, only about 3,000 live in Siemensstadt itself. The rest, over 70,000, travel daily from various parts of Greater Berlin, and even from outside that area from distances as great as 70 or 80 kilometers.

The firm has been actively concerned with the question of the development of transport facilities, and some years ago a special branch line was built right into the Works from the main line of the Reichsbahn. Special trains for the workpeople are run on this branch to the main junctions. The other means of transport mainly used are tramways, motor-buses, motor-cars and bicycles.

A careful enquiry made in April 1927 by the Industrial Relations Department of the firms showed that the distribution of the workers living in various parts of Greater Berlin was as follows :

Administrative district	Workers employed by the Siemens firms
Central Berlin	21,962
Charlottenburg	10,832
Spandau	12,846
Wilmersdorf	1,157
Zehlendorf	137
Schöneberg	1,071
Steglitz	659
Tempelhof	363
Neukölln	1,284
Treptow	184
Cöpenick	129
Lichtenberg	984
Weissensee	207
Pankow	728
Reinickendorf	638
Greater Berlin	53,181

The map on p. 8 shows clearly the position of Siemensstadt and the density of the Siemens population living in each of the postal areas of Greater Berlin.

The enquiry further showed that there were, on 1 April 1927, no fewer than 2,221 members of the staff of the Siemens firms living at distances greater than 10 kilometres from the Works. Of these, 37 lived at a greater distance than 50 kilometres from Siemensstadt. The detailed figures are as follows :

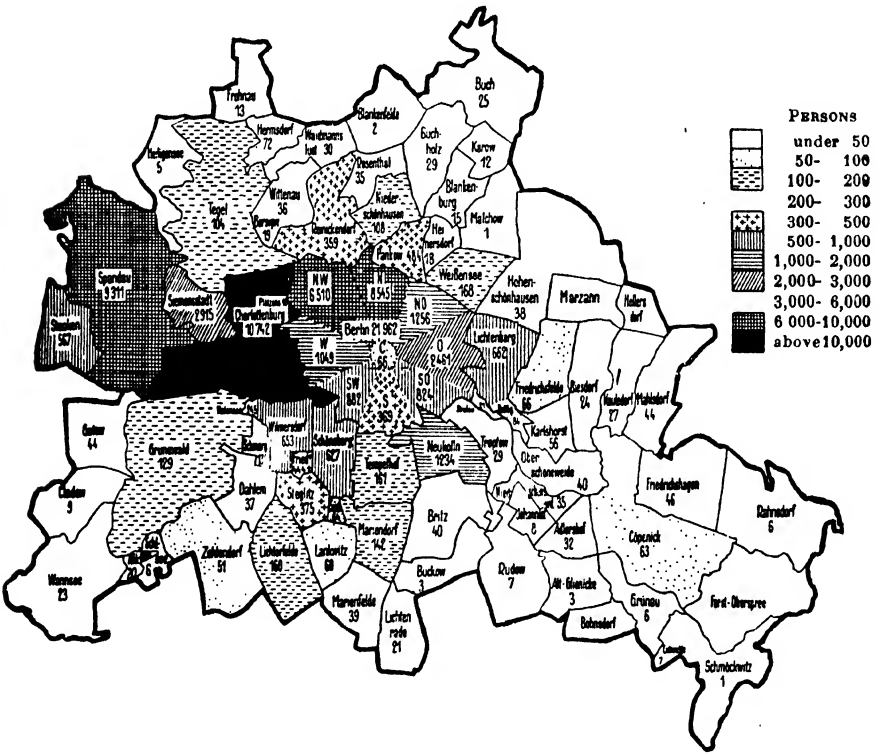
Over 10	kilometers	117	persons
15	,,	1,210	,,
20	,,	280	,,
25	,,	427	,,
30	,,	65	,,
35	,,	53	,,
40	,,	17	,,
45	,,	15	,,
50	,,	37	,,
	Total	2,221	persons

It is clear that this wide distribution of the working population of Siemensstadt creates difficulties not only from the point of view of transport, but also in connection with the provision of midday meals. The measures taken by the firm to deal with the latter problem will be indicated in detail in the section of this report dealing with welfare.

The department of the firm specially concerned with the organisation and administration of industrial relations is the Industrial Relations Department *(Sozialpolitische Abteilung)*. The Industrial Relations Department forms one of the central departments common to both Siemens and Halske and the Siemens-Schuckert Works, and its Director and most of its officials are located in the central administration building at Siemensstadt. The Department naturally works in the closest concert, in matters of general policy, with the Managing Directors of Siemens and Halske and the Siemens-Schuckert Works. With regard to questions of detailed execution, it operates in close co-ordination with the works managers in charge of the various individual works.

The functions of the Industrial Relations Department comprise all questions relating to labour and employment in accord-

DISTRIBUTION OF EMPLOYEES OF THE GREATER BERLIN SIEMENS WORKS, ACCORDING TO THE POSTAL DISTRICTS THEY INHABIT (1 APRIL 1927)



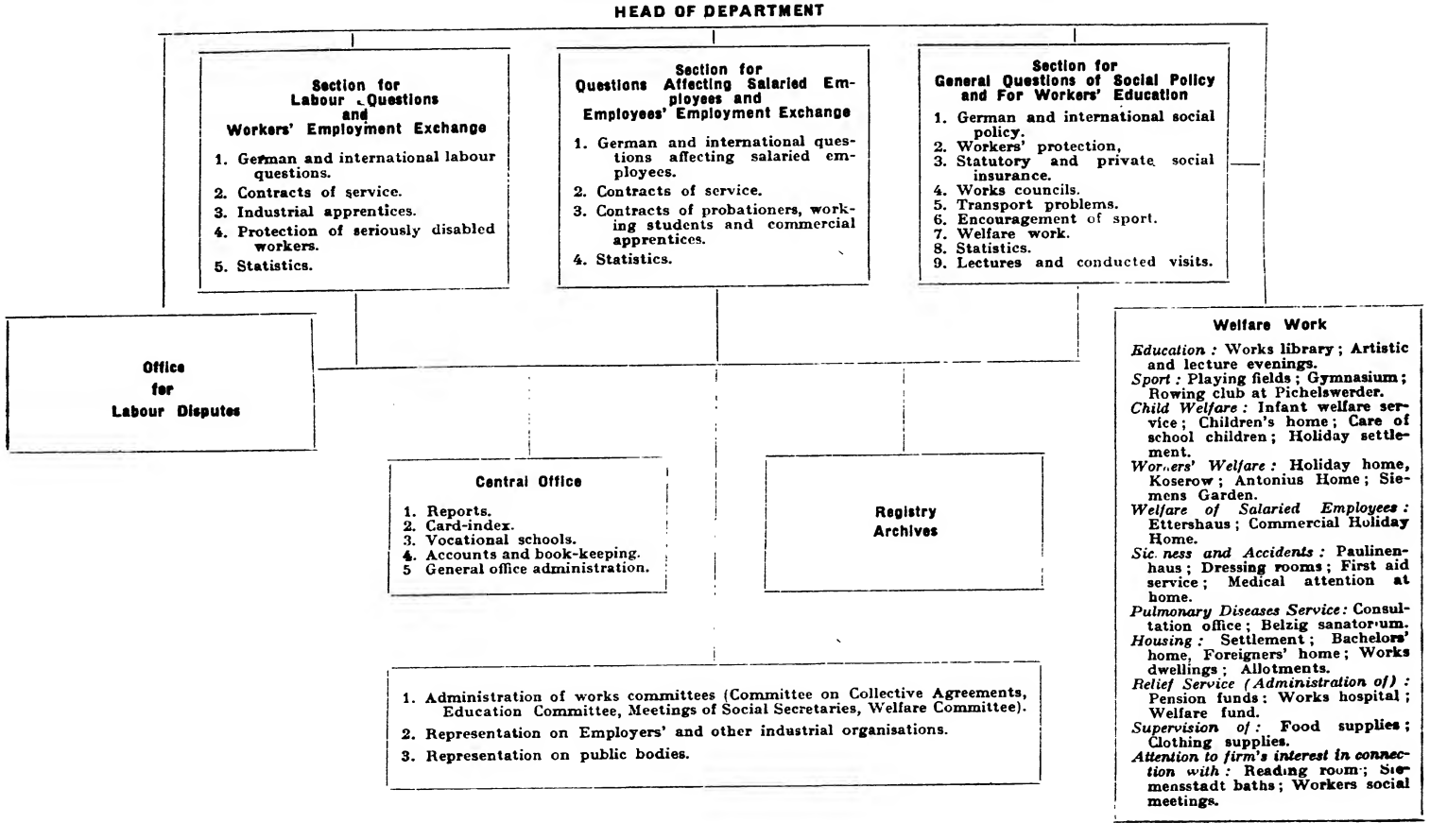
ance with legislation, collective and individual agreements. Its duties comprise questions relating to hours and conditions of service, wages and salaries and other similar questions affecting the staffs as a whole, with a view to securing uniform and consistent treatment in all the Works of the firm ; the elaboration of the system for the registration and documentation relating to the employees, the setting-up of a central staff-indexing system covering all the Greater Berlin works and departments ; relations with the United Works Council ; the administration or co-ordination of questions relating to health, accidents, pensions, workers' transport and housing conditions, education, apprenticeship, and so forth ; the management and control of restaurants, institutes and other premises set aside for the staff, and also of the catering stores ; and finally the general supervision of the welfare work of the firms in all its various aspects.

The organisation and administration of particular matters appertaining to industrial relations in the various works are, in principle, decentralised. Questions of employment, for example, and contacts with the Works Council in each works are dealt with by management in the works concerned. In each of the largest works there is an industrial relations officer who assures at all times and in all circumstances the closest liaison between the works administration concerned with the details of industrial relations and the general industrial relations policy of the firm as developed by the Industrial Relations Department.

The internal organisation of the Industrial Relations Department is shown in the table on page 10.

Relations with Joint Bodies, Employers' Organisations and Trades Unions : Collective Bargaining

In connection with the organisation and administration of industrial relations, the firm is related to various joint bodies, employers' organisations and trades unions. The firm is a member of the Association of Iron and Steel Manufacturers of Berlin *(Verband Berliner Metall-Industrieller),* and the workers are members of various trades unions in the metal and associated industries. General conditions of work in the firm are laid down in collective agreements concluded between the Association of Iron and Steel Manufacturers of Berlin on the one hand and the respective trades unions on the other.


HEAD OF DEPARTMENT
Section for Labour Questions and Workers' Employment Exchange
1. German and international labour questions.
2. Contracts of service.
3. Industrial apprentices.
4. Protection of seriously disabled workers.
5. Statistics.
Section for Questions Affecting Salaried Employees and Employees' Employment Exchange
1. German and international questions affecting salaried employees.
2. Contracts of service.
3. Contracts of probationers, working students and commercial apprentices.
4. Statistics.
Section for General Questions of Social Policy and For Workers' Education
1. German and international social policy.
2. Workers' protection,
3. Statutory and private social insurance.
4. Works councils.
5. Transport problems.
6. Encouragement of sport.
7. Welfare work.
8. Statistics.
9. Lectures and conducted visits.
Office for Labour Disputes
Central Office
1. Reports.
2. Card-index.
3. Vocational schools.
4. Accounts and book-keeping.
5 General office administration.
Registry Archives
1. Administration of works committees (Committee on Collective Agreements, Education Committee, Meetings of Social Secretaries, Welfare Committee).
2. Representation on Employers' and other industrial organisations.
3. Representation on public bodies.
Welfare Work
Education : Works library ; Artistic and lecture evenings.
Sport : Playing fields ; Gymnasium ; Rowing club at Pichelswerder.
Child Welfare : Infant welfare service ; Children's home ; Care of school children ; Holiday settlement.
Workers' Welfare : Holiday home, Koserow ; Antonius Home ; Siemens Garden.
Welfare of Salaried Employees : Ettershaus ; Commercial Holiday Home.
Sickness and Accidents : Paulinenhaus ; Dressing rooms ; First aid service ; Medical attention at home.
Pulmonary Diseases Service: Consultation office ; Belzig sanatorium.
Housing : Settlement ; Bachelors' home, Foreigners' home ; Works dwellings ; Allotments.
Relief Service (Administration of) : Pension funds : Works hospital ; Welfare fund.
Supervision of : Food supplies ; Clothing supplies.
Attention to firm's interest in connection with : Reading room ; Siemensstadt baths ; Workers social meetings.

Two collective agreements regulate the working conditions of wage-earning workers and of salaried employees respectively. The one relating to wage-earners is that adopted in a codified form on 16 July 1928 between the Association of Iron and Steel Manufacturers of Berlin on the one hand and the German Metal Workers Association, Berlin District, on the other, entitled : " Collective Agreement for male and female workers employed in the Berlin metal industry ". This collective agreement, published jointly by the two parties to it, is a carefully arranged and indexed document of 104 pages, dealing in detail with hours of work, rest pauses, employment, holidays, dismissals, wage rates, including piece work and time work, representation of the workers, conciliation, and so forth. The provisions with regard to wage rates are particularly detailed and contain most careful classifications of the various forms of industrial occupation for which men and women may be employed. This collective agreement contains provisions of various dates in the post-war period. Its validity was fixed at its coming into force for a period of two years, which is automatically prolonged six months at a time provided neither party denounces it. The wage provisions, however, are valid only for a shorter period, and certain alterations were made in 1929.

In the case of salaried employees a similar codified collective agreement was concluded on 20 October 1928 between the Association of Iron and Steel Manufacturers of Berlin on the one hand and the following associations of salaried employees on the other : The Union of Technical Employees and Officials *(Bund der technischen Angestellten und Beamten)*, the German Foremen's Federation *(Deutscher Werkmeister-Verband)*, the Central Federation of Salaried Employees *(Zentralverband der Angestellten)*, the German National Federation of Commercial Employees *(Deutschnationaler Handlungsgehilfen-Verband)*, the Federation of Female Commercial and Office Employees *(Verband der weiblichen Handels- und Büro-Angestellten)*, the Federation of German Technicians *(Verband Deutscher Techniker)*, the Berlin District Branch of the German Foremen's Association *(Deutscher Werkmeisterbund)*, and the Trade Union Federation of Salaried Employees *(Gewerkschaftsbund der Angestellten)*.

This collective agreement, like that mentioned above, is published by the parties to it, and is a printed document of 40 pages. It enters into great detail with regard to hours of

work, overtime, holidays, accidents and insurance, salaries, conciliation, employment and dismissal. With regard to salary rates, an annex resulting from an agreement of 24 September 1929 fixes the rates. This collective agreement remains in force for one year, and is thereafter tacitly renewed, unless either side wishes to introduce changes, in which case it has to give notice to that effect three months before the expiry of the period of validity.

In the event of a dispute arising with regard to the interpretation of the collective agreement, the matter is referred to a special Superior Committee consisting of five representatives of each of the parties. This Committee may also formulate decisions without being called upon by either party. Its decisions are binding. As regards disputes concerning the classification into groups of the salaried employees, these come before a "Grouping Committee" *(Eingruppierungskammer)* consisting of two employers, two workers, and one impartial assessor. For the rest, conciliation procedure for all disputes arising out of collective-agreement terms follow the lines laid down by law.

Although the collective agreements are extremely detailed, they leave room for further agreements on points of greater detail to be concluded within the individual works and, as we shall see in the next section of this report, such agreements have, in fact, been concluded in the various works of the Siemens firm.

Apart from the relations which the firm has through the Employers' Association with the trade unions, it has little direct contact with the trade unions. Such relations as it has are relations in various official or joint bodies which provide for representation of employers and workpeople. Among these bodies, reference may be made in particular to the Employment Offices *(Arbeitsämter)*, Social Insurance Offices *(Versicherungsämter)*, Committees for the Employment of Disabled Men *(Schwerbeschädigtenausschüsse)*, and Labour Courts.

Industrial Relations within the Firms: Works Councils

The Siemens Works have a long tradition of workers' representation. In the year 1872, a committee, consisting of representatives elected by the whole staff, was set up to co-operate with the management of Siemens and Halske's pension funds. This,

however, was not "workers' representation" in the modern sense, since the committee's functions were restricted to the one question of pensions. Yet it was the first expression of the idea of co-operation with the workers — an idea which in 1903 led to the creation of the first workers' committees, consisting of workers' representatives, some of whom were appointed by the management and some elected by their own fellow workers. In 1906 the firm renounced its right to appoint workers' representatives, and from that time until the war the appointment of representatives of the workers on these workers' committees was made entirely by free election.

The scope of the work of these committees was wide. They dealt with all questions of interest to the workers, including wages and hours, complaints and grievances, the application of legislation, accidents, health, and so forth. It should be noted that these committees were voluntarily set up in the Siemens firm and were not the result of any form of legislation. In 1916, however, an Auxiliary National Service Law *(Hilfsdienstgesetz)* provided for the creation of workers' committees. Since 1920, the representation of the workers within the firm has been assured in accordance with the Works Councils Act of 4 February 1920 *(Betriebsrätegesetz)*.

The detailed application of this Act in the Siemens Works at Siemensstadt is provided for in an agreement dated 4 November 1920, concluded between the management of the firm and the United Works Council. While this agreement of 4 November 1920 has been subsequently amended, the main provisions of it remain in their original form.

The general provisions of the German Works Councils Act are well known, but it is of much interest to study the detailed application of the Act, which has given rise to so much discussion both in Germany and abroad, in a particular firm.

The Act provides that, in order to protect the common economic interests of salaried and wage-earning employees in relation to their employers and to support employers in effectively carrying on their businesses, works councils should be constituted in all works normally employing not less than ten persons. Separate councils for salaried employees and wage-earning workers are to be constituted in every works where both wage-earners and salaried employees are employed. It was also provided that if several works serving allied purposes and

belonging to the same proprietor are situated in the same commune, united works councils may be constituted in addition to the councils for individual works. In accordance with this provision, councils for salaried employees and for wage-earning workers have been set up in the various work of the Siemens firm and a United Works Council *(Gesamtbetriebsrat)* has also been established.

The Act further provides that all members and supplementary members of works councils are to be chosen at the same election by the employees of the undertaking from among their own ranks by direct ballot vote on the system of proportional representation, and that they shall hold office for one year. Members and supplementary members who are salaried employees shall be similarly elected by the salaried employees. Wage-earning workers and salaried employees of both sexes who have attained the age of 18 years and who are in possession of civic rights shall be entitled to vote. To be eligible for election as member of the councils, it is necessary to have attained the age of 24 years, to be a German citizen, to have completed training in a particular occupation, and to have been employed on the day of election for not less than six months in the particular works or undertaking and for not less than three years in the branch of industry or occupation in which the worker is engaged on the day of election.

The following tables give particulars with regard to the wage-earning workers and salaried employees, members of the works councils in the Siemens firm. The first table gives the total number of works council representatives, both for the Greater Berlin works and for the Nuremberg works, and the second table shows, for the Greater Berlin works only, the trade-union affiliation of the members of the works councils.

NUMBER AND DISTRIBUTION OF WORKS COUNCIL MEMBERS, 1930

	Works council members			Substitute members			Totals		
	Salaried employees	Wage-earning workers	Total	Salaried employees	Wage-earning workers	Total	Salaried employees	Wage-earning workers	Total
Greater Berlin	79	149	228	71	46	117	150	195	345
Nuremberg	9	25	34	12	7	19	21	32	53
Total	88	174	262	83	53	136	171	227	398

AFFILIATION OF WORKS COUNCIL MEMBERS

	Works council members			Substitute members			Totals		
	Salaried employees	Wage-earning workers:	Total	Salaried employees	Wage-earning workers	Total	Salaried employees	Wage-earning workers:	Total
Representatives of the three leading trade-union organisations									
Socialist trade-unions (Free and AFA)	31	104	135	28	34	62	59	138	197
Hirsch-Dunkler organisations, etc.	3	—	3	5	—	5	8	—	8
Christian national trade-unions (*Gedag*)	17	—	17	23	—	23	40	—	40
Representatives of political parties, etc.									
Left parties: communists, anti-trade-unionists, etc.	—	21	21	—	5	5	—	26	26
Right parties: Fatherland, National socialists, etc.	11	14	25	6	3	9	17	17	34
Unaffiliated to trade-unions or political parties	17	10	27	9	4	13	26	14	40
Total	79	149	228	71	46	117	150	195	345

In each individual works of the Siemens firms there exists a works council (*Betriebsrat*) which in the largest works attains to the statutory maximum of 30 members, and also a salaried employees' council (*Angestelltenrat*), and a wage-earners' council (*Arbeiterrat*). A United Works Council for the whole of the firms, consisting also of 30 members, is composed of representatives of the various constituent works councils. A committee of five members of the United Works Council constitutes the ultimate voice of the workers in the Siemens firms.

A special agreement between the management of the firms and the United Works Council provides in detail for the number of working hours for which works council members on council business will be paid by the firms. The law provides that a

works council shall meet outside working hours as a rule and whenever possible, and that when it is necessary to hold a meeting during working hours the employer shall be given proper notice. It further provides that members and substitute members of works councils shall fulfil their duties without remuneration in working hours, but that unavoidable loss of working time shall not be made a ground for the reduction of wages or salaries. These clauses in the Act have given rise to considerable dispute in various German firms, but in the Siemens works the arrangements concluded have worked entirely smoothly.

The agreement provides that 35 members of works councils, including the five members of the committee of the United Works Council, shall devote their time to works council business. They are paid by the firm on a wage-earning or salary basis, in accordance with the rates of earnings of their category. A large number of the other members of the works councils devote a considerable proportion of their time to works council business and are remunerated for this time by the firm. The detailed distribution of hours per week placed at the disposal of the works council representatives is amended from time to time by agreement between the management and the United Works Council.

In addition to this, provision is made, in accordance with another section of the Act, for hours being set aside, also at the expense of the firm, for interviews between members of the works councils and the workers. The Act provides that works councils may arrange for regular hours for interviews on one or more days in each week, when the employees may make requests and complaints. If the hours for interviews fall within working hours, the arrangement must be made by agreement with the employer. It is provided in a special Siemens agreement that all works council members not employed full time on works council business must inform the foreman in good time of the probable duration of their absence on works council business and must report to him on their return to work.

At present over 2,000 hours per week, including the time of the whole-time representatives is, in the Greater Berlin Works, devoted to works council business and interviews. The distribution among individual works is regulated by agreement with the United Works Council, and varies between 2 hours for small works up to 560 for the largest. That for works council

business and for interviews is fixed by agreement between the management and the works council representative.

In accordance with the provisions of the Act, a special Siemens agreement provides for the placing at the disposal of the works council by the firm of room space, etc. The Article of the Act providing that the employer shall place rooms and other business necessaries at the disposal of the works council has been interpreted in a liberal sense by the management. In works in which nine or less works council members are employed, one room is placed permanently at the disposal of the works council, and in works with over nine works council members, two rooms. Each room is furnished at the expense of the firm with the usual office equipment, including tables, chairs, wardrobes, book-cases and other furniture. Telephones and stationery and reference books are also provided. Four typists are placed at the disposal of the works councils. Certain provision is also made for the personal expenses of works council members.

The powers and duties of the various councils are laid down in detail in the Act. It will be useful to recapitulate or summarise them here.

The powers and duties of the works council *(Betriebsrat)* are usually distinguished into economic and social aspects. The economic functions include the duty to co-operate in the achievement of the maximum degree of economy in production in the undertaking, to co-operate in the introduction of new methods of work, and to guard the undertaking against disturbances. The other duties of the works council, while they involve an economic aspect, are rather social in their orientation. The works council has to supervise the execution of decisions accepted by both parties in respect of matters affecting the undertaking as a whole which have been issued by a conciliation or arbitration committee or other organ. It must also promote good understanding among the employees themselves and between them and the employer, and safeguard the employees' right of association. It must come to an agreement with the employer as regards rules of employment, and must endeavour to secure the removal of the causes of complaint by negotiation with the employer. The works council has further duties in connection with the prevention of accidents and injury to health, and in the participation in the administration of pension funds, dwellings attached to the works and other welfare arrangements.

The duties of councils of wage-earning workers *(Arbeiterrat)* and of salaried employees *(Angestelltenrat)* are more restricted than those of the works council and do not extend to the purely economic field. Their functions involve the more detailed application of the social duties of the works council. Thus they are to see that legal provisions for the benefit of employees and collective agreements respecting conditions of employment, and also decisions accepted by the parties of a conciliation committee or of any other organ of conciliation or arbitration agreed upon, are carried out in the undertaking. They are to take part in the fixing of wages and other conditions of employment in so far as they are not already regulated under collective agreements. They have further detailed duties on the same lines as those of the works council with regard to agreements with the employer respecting rules of employment, the investigation of complaints and the removal of their causes by negotiation with the employer, the taking of action to prevent accidents and injury to health, and, in particular, intervention on the behalf of persons disabled in the war or by accidents. These councils finally have a duty to come to an agreement with the employer respecting general principles for the engagement of employees and to intervene in cases of dismissal of employees.

The general distinction, it will be seen, between the functions of the works council on the one hand and the councils of wage-earning workers and salaried employees on the other is that the works council possesses certain functions of a purely or predominently economic type, and further that the works council's functions relate in general to questions of general principle, while the councils of wage-earning workers and of salaried employees deal in greater detail with the actual application of these principles.

The Works Council Act, as is well known, does not provide for the setting up of any joint committee of representatives of the management and of the workers. It does, however, make provision at various stages for relations between the works councils and the management. It is provided in the Siemens firm that the works council, the salaried employees' council and the wage-earning workers' council in each works negotiate directly with the works manager of the particular works. Only if it is not possible to reach agreement by direct negotiations is the matter brought by the local works council to the United

Works Council. The relations of the United Works Council are with the Central Industrial Relations Department and with the Board of Directors.

The management may be invited to take part in the meetings of the works councils. The management cannot take part in any meeting of the works councils unless invited to do so.

Minutes must be kept of every meeting of the works councils, and if a member of the management has been present and has given explanations in the course of a debate, the minutes must be submitted to him for signature.

The works council has the right to ask the employer to give access to all transactions of the undertaking which affect the contract of employment or the activities of the employees and to the wages books and information required in connection with the carrying out of existing agreements, in so far as business or trade secrets are not endangered thereby and legal provisions do not prevent it.

It is further provided that the employer should make a quarterly report on the position and progress of the undertaking and of the industry generally and, in particular, on the output of the works and on anticipated requirements in respect of labour.

It is also laid down that in works over a minimum size the works council may require an annual balance sheet to be submitted for the inspection of the works committee. The members of the works committee or works council are bound to preserve secrecy in respect of confidential matters communicated to them by the employer.

These various provisions are carried out regularly in the Siemens firms, and particular care is taken to explain the financial and industrial situation to the works council members.

The committee of the United Works Council has at present in preparation a historical work which will give an account of the development of the works council and of the position of industrial relations in the Siemens firm as seen from the point of view of the works council. That work will show in detail the way in which the various questions which have come before the works council during these years have been dealt with. The works council has, in fact, been concerned especially with the following questions: the settlement of grievances, either through direct negotiations with the management or before the conciliation court; accident prevention; insurance questions;

wage disputes arising out of the interpretation of collective agreements and works agreements ; changes in the nature of work or methods ; introduction or alteration of machinery ; the consideration of employment procedure ; and the review of discharges.

The development of industrial relations in special connection with the evolution of the works council system has been particularly smooth in the Siemens firm, owing in part to the sincere desire on the part of the Industrial Relations Department to obtain the best results, and in part to the fact that a considerable proportion of works council members, including the Chairman of the Committee of the United Works Council, have been re-elected year after year since the establishment by law of works council machinery. The advantages of such permanence in the direction of the policy of the works councils are so obvious that there is general agreement, both on the part of management and on the part of the workers in the Siemens firm, that it would be desirable that elections should take place not every year, as provided by law, but every two years. It is felt that a longer term of office on the part of works council members would be advantageous both from the point of view of the workers and from that of the management.

In addition to the provisions for collaboration between management and workers through the works councils scheme, arrangements are in operation for securing representation of the workers on various bodies functioning for the direct benefit of the workers. Thus, in addition to statutory representation, the workers are represented at the firm's suggestion on the Board of Directors of the Industrial Sick Fund, the committee of the Pensions Fund, in the Advisory Council of the Welfare Foundation, on the Accident Prevention Commission, on the restaurant committees, and so forth. The firm has, in fact, done its best not to limit co-operation between management and the representatives of the workers to the strict provisions of the law embodied in the Works Councils Act, but has endeavoured at every point to extend the principle of representation, whenever possible, in other domains.

In accordance with the provisions of the Act, two representatives of the Works Councils have seats on the Supervisory Board *(Aufsichtsrat)* of the two main companies. These representatives who, in the case of the Siemens firm, include the Chairman

and Vice-chairman of the Committee of the United Works Council, have the right to attend and to vote at all meetings of the Supervisory Board, in order to represent the claims and interests of the workers and to put forward their opinions and desires in respect of the organisation of the undertaking.

One of the provisions of the Works Councils Act is that the works councils shall, subject to the terms of existing collective agreements, negotiate agreements with the employer respecting general rules of employment. In accordance with this stipulation, negotiations have taken place at Siemensstadt between the management and the works council, and a *corpus* of general rules of employment has been adopted and put into force both for wage-earning workers and for salaried employees.

The Work Rules *(Arbeitsordnungen)* applying to wage-earning workers were agreed upon on 16 January 1922, with validity from 1 February 1922, and have since remained unchanged. Some difficulty was experienced in securing agreement between management and the United Works Council, and points in dispute had to be submitted to the decision of the Conciliation Committee for Greater Berlin, sitting under an impartial chairman, on 31 January 1921, 7 February 1921, and 17 October 1921. The purpose of the Work Rules is to regulate details of employment, with special reference to conditions in the particular works, in application of the principles laid down in the collective agreement. If at any time any inconsistency should arise between the Work Rules and the collective agreement, the provisions of the collective agreement, an instrument of superior instance, must in all cases prevail. The Work Rules deal in detail with the procedure for the engagement and dismissal of workers, distribution of hours of work, overtime, rest pauses, methods of calculation and payment of wages, provisions for the prevention of fire and accidents, the cleaning of machinery and tools, gate control, methods of dealing with grievances, and so forth.

The Service Rules *(Dienstordnung)*, applying to salaried employees, were agreed upon on 3 August 1929, with validity from 1 October 1929. They also regulate details of employment in accordance with the general principles laid down in the collective agreement. The Service Rules differ somewhat in scope and character from the Work Rules, in view of the differences in

functions between the salaried employee and the wage-earning worker. The Service Rules contain provisions with regard to the duties and responsibilities of supervisors, the maintenance of secrecy concerning the firm's work, the distribution of hours of service, identity papers, door control, announcement of sickness and delays, subsidiary activities outside the firm, such as writing or lecturing, procedure for dealing with grievances, and so forth.

Individual Relations between Management and Workers

Great importance is attached at Siemensstadt, in connection with industrial relations, to the establishment of direct contact between management and the workers. Dr. von Siemens himself emphasises the necessity, for the maintenance of the traditions of the firm, of multiplying opportunities for this direct contact. It is clear that it is not possible for the relations of the head of the firm to his 76,000 workers at Siemensstadt to be as intimate as were the relations of his father, 83 years ago, to the handful of workers with whom he founded the firm. Methods must be adapted to circumstances. Dr. von Siemens has sought to establish direct relations between himself and his workpeople in two ways ; on the one hand, through the printed word with all the workers in the firm, and on the other, through the spoken word with selected groups of workers.

The printed word is represented in two forms. In the first place, the firm issues a works magazine, *Siemens-Mitteilungen,* in which announcements that Dr. von Siemens wishes to make to the whole staff are printed. This magazine includes also, in addition to other matter, records of Dr. von Siemens' speeches at the shareholders' meeting and on other occasions of interest to the workers. To ensure that this magazine should be as widely read as possible, it is not given out at the works, but is posted free to the homes of all the workers.

In addition, Dr. von Siemens occasionally issues announcements which are posted on all notice boards in the works, with regard to such questions as, for instance, the Apprentice Foundation *(Lehrlingsstiftung),* German Safety First Week *(Reichsunfallverhütungswoche),* Annual Bonuses *(Abschlussprämie).* These bring directly to the attention of all workers, from the

head of the firm himself, questions to which he attaches special interest and which are of particular importance.

The spoken word is necessarily more limited in scope than the written word. The head of the firm cannot hope to reach all workers through personal addresses, and therefore he necessarily confines himself to special groups on special occasions. For example, Dr. von Siemens himself presents at a special annual festival the gifts or certificates given in the name of the firm to workers who have completed 25 years' service and to others specially deserving of recognition. On this and other occasions Dr. von Siemens attempts to enter into direct touch with specific groups of the workers.

In accordance with the example of Dr. von Siemens, the heads of all departments take every reasonable opportunity of developing personal contact with their staffs. Christmas parties are arranged in various departments and sections, in which all members of the department and section take part, and summer excursions are also organised by the individual works.

Every endeavour is made, finally, to interest the workers in the progress of the firm, not only through the *Siemens-Mitteilungen,* but also by organising works exhibitions, arranging representations of cinema films showing various aspects of the work of the firm, and the giving of lectures. Lectures on the history and development of the firm are given to all newly engaged salaried employees, in groups of 50-100, and lectures in individual works are also arranged from time to time as opportunity occurs.

Wages, Hours, and General Conditions of Service

Wages, hours, and general conditions of service of wage-earning workers and salaried employees are determined partly by legislation, partly by collective agreement and partly by work or service regulations.

The legislative provisions are numerous, and only the principal ones need be mentioned here. These are the Civil Code *(Bürgerliches Gesetzbuch),* the Commercial Code *(Handelsgesetzbuch),* the Industrial Regulations *(Gewerbeordnung),* the

Regulations on Hours of Work *(Arbeitszeit-Verordnung)* of 21 December 1923, the Emergency Act on Hours of Work *(Arbeitszeit-Notgesetz)* of 14 April 1927, the Works Councils Act *(Betriebsrätegesetz)* of 2 April 1920, the Maternity Act *(Mutterschutzgesetz)* of 16 July 1927, the Act on the Employment of Disabled Men *(Gesetz über die Beschäftigung Schwerbeschädigter)* of 12 January 1923, and the Act on Notice of Dismissal *(Kündigungschutz-Gesetz)* of 9 July 1926.

The collective agreements and work and service regulations have already been described.

It is in accordance with this mass of legislation and regulation — part of it national in scope, part of it district, and part of it confined to the particular firm—that conditions of service are determined. It will be convenient to give a tabular presentation of the main conditions of service resulting, on the basis of legislation, from the functioning of the system of industrial relations which has just been described.

MAIN CONDITIONS OF SERVICE

Condition	Wage-earning workers	Salaried employees
Rates of pay	For the purposes of rates of pay, wage-earning work is divided into four main classes: A. specialised work; B. normal skilled work; C. semi-skilled work; D. unskilled work. Time rates are as follows: Men / Women Class A 112 Pf. / — Pf. " B 100 " / — " " C 89 " / 62.5 " " D 84 " / 59.0 " Time rates are minimum rates, and the firm may give allowances in accordance with the special duties and responsibilities of the particular job. Piece-work rates are calculated to provide that the average worker can earn 15 per cent. above the time rates. Normal piece-work rates, therefore, are as follows: Men / Women Class A 129 Pf. / — Pf. " B 115 " / — " " C 102 " / 72.0 " " D 97 " / 68.0 " The piece-work rates given are average rates (but not guaranteed minimum rates) and actual earnings are considerably higher. For purposes of comparison, the results of an official enquiry into the metal industry in Germany [1] shows the average piece-work rates in the German metal industry to be: *Specialised and skilled worker* corresponding to Classes A and B Time 107 Pf.; Piece 118 Pf. *Semi-skilled worker*, corresponding to Class C Time 88 Pf.; Piece 108 Pf. *Unskilled worker*, corresponding to Class D Time 79 Pf.; Piece 96 Pf. *Woman worker*, corresponding to Classes C and D Time 56 Pf.; Piece 67 Pf.	For rates of pay, salaried employees are classified in four main groups: A. Employees who have received no regular training; B. Apprentice employees; C. Office employees occupied on subordinate or simple mechanical functions. This class is subdivided into three sub-classes; *(a)* messengers and assistant clerks under 18; *(b)* subordinate office assistants over 18; and *(c)* pay office messengers, etc.; D. Employees having terminated apprenticeship or vocational training. This class is subdivided into several sub-classes; (1) employees under 18, (2) employees over 18 *(a)* commercial employees and works employees (again sub-divided into four classes), *(b)* technical office and works employees (sub-divided into eight classes), and *(c)* foremen (sub-divided into nine classes). In each of the grades provision is made for increments running until the employee has been from three to five full years in the same grade. Female employees receive in each grade a somewhat lower salary than the corresponding male employee. The rates for males vary from 45 RM. to 116 RM. monthly Grade A; 32-68 RM., Grade B; 102-202 RM., Grade C *(b)* *(c)* and 89-420 RM., Grade D. These salary rates are all fixed in the collective agreement.

[1] At October 1928. At the present time the rates are from 3 to 5 Pf. higher.

MAIN CONDITIONS OF SERVICE *(continued)*

Condition	Wage-earning workers	Salaried employees
Overtime rates	Ordinary overtime, 15 per cent. Work on Sunday and holidays, 50 per cent.; in both cases on time rates. In the case of piece rates, similar percentage on the average piece rates.	Overtime rates at the rate of 6 per thousand for ordinary overtime, and 8 per thousand for time on Saturdays and Sundays and after 8 p.m. on other days. No overtime paid until 48 hours a week have been worked.
Allowances		Certain allowances are provided for in the collective agreement. These are family allowances of 10 RM. for the wife and for each child up to the age of 15, and telephonists' allowance of 9 RM. Special allowances are also given to employees holding supervisory functions. These monthly allowances are flat rates. In addition to these allowances, provided for in the collective agreement, Siemens pay certain additional allowances; charge allowances and bonus allowances for special duties; allowances for dependants other than wives and children — for example, parents and sisters; children's allowances up to 18 years; end of year bonuses, details of which are given later.
Normal working week	48 hours weekly; in cases of urgency, up to 54 hours provided that the total additional hours for the month do not exceed 10.	48 hours weekly; in cases of urgency up to 54 hours, provided that the total additional hours for the month do not exceed 10.
vertime	By collective agreement, the firm can impose 15 hours' overtime in every period of thirteen weeks. If more overtime than this is required, the agreement of the wage-earning workers' council is necessary.	Overtime exceeding 6 hours in the week and 10 in the month must be agreed with the representatives of the salaried employees unless in cases permitted by the Order on Hours of Work.
Spread-over and hours of duty	For a variety of reasons, one of which is to avoid traffic congestion, wage-earning workers are divided into six groups, according to the works in which they are employed. These groups begin and finish work ten minutes after one another, the hour of starting duty varying according to the group from 6.20 to 7.10 a.m. and the hour	Salaried employees are also divided into six groups, which begin work at 10-minute intervals, from 7.20 to 8.10 a.m., finishing work at 4.20 to 5.10 p.m., Monday to Friday, and at 12.50 to 1.40 p.m. on Saturday. Meal intervals are the same as for wage-earning workers.

MAIN CONDITIONS OF SERVICE *(continued)*

Condition	Wage-earning workers	Salaried employees
	of finishing work varying from 3.5 p.m. to 3.55 p.m. Monday to Friday, and from 1.20 to 2.10 p.m. on Saturday. The breakfast period consists of 10-15 minutes taken between 9 and 10 a.m., and the dinner period from 20-30 minutes taken between mid-day and 1 p.m., Monday to Friday. On Saturday, 10-15 minutes breakfast period is given between 10 and 11 a.m.	The working hours amount to 8½ hours from Monday to Friday and 5½ on Saturdays, not including an interval of ½ hour at midday, which also takes place on Saturdays.
Annual leave with pay	Every worker with six months' service on 1 April of any year is entitled to holidays with pay. The period given varies from 3 working days in the case of a worker with not more than one year's service to 8 days for a worker with over ten years' service. Years of service in all plants of the firm are valid. Service must, however, be uninterrupted, with the proviso that a break up to a period of two months is not regarded as an interruption. During leave workers are entitled to full wages. If the department is working overtime, he is entitled to overtime pay during his holiday. On the other hand, if the Department is working short time, he is paid for full time on holidays. Special leave is given for long service (Jubilee workers); 25-29 years' service, 12 working days per annum; 30-34 years' service, 15 working days, and over 35 years' service, 18 working days.	Annual leave with pay is granted to all employees who, on 30 June of each year, have had six months' unbroken service with the firm. The number of working days varies in accordance with grade from 6 to 20. In addition, employees over 30 years of age and with six months' service receive in all grades two additional working days' leave. In principle leave to be taken all at one time.

Employment Procedure

The general principles of employment procedure are in part regulated by agreement between employers and workers and in part by legislation.

Collective agreements, for example, provide what proportion of workpeople may be employed otherwise than through employment exchanges, and legislation what proportion of disabled

men must be employed, what notice must be given on the termination of employment and, through the Works Councils Act, provides machinery for agreement within the works on the general principles of employment. The Works Councils Act provides that in so far as the general principles for the engagement of workers are not regulated by collective agreements, these principles should be agreed upon between the employer and his workpeople. Further, the Act provides for the possibility of intervention of the works councils in cases of dismissal. The principles of industrial relations are thus applied in respect of employment and dismissal. On the basis, however, of the general principles laid down in legislation and collective agreement, and within the limits provided for negotiation through the works council system, employment procedure is entirely a matter for administration by the management.

It will be convenient to deal separately with the administration of employment in the Siemens Works as it affects salaried employees and wage-earning workers.

There is, however, one provision relating to employment of concern both to salaried employees and wage-earning workers which is of sufficient general interest to mention here. Every person engaged at Siemensstadt, whether of the ranks of management, as salaried employee or as wage-earning worker, must have a pass. In the case of wage-earning workers this pass is made of stout cardboard, approximately 10½ ×7½ cm. in size. It is enclosed in a holder of aluminium with a mica face. The card contains the name of the person employed, the category in which he is employed, the name of the works, the section of the works, the number of the working place and of the normal door of entry to the works. Finally, it must be signed by the holder. The cards differ in colour according to the works and sections of the works in which the individuals are employed. The validity of the cards is in some cases limited. This is done by pasting a small coloured mark upon a corner of the cards: after the date of issue of this mark no card which is without it will be accepted. The passes for salaried employees differ in shape and colour. They also carry a photograph of the bearer. While the ordinary passes only permit the workers to enter or leave their place of work at the beginning or end of their period of duty, special temporary cards are issued to salaried employees permitting them to leave at any moment. It is intended

in future to apply the principle of limiting the validity of salaried employees' passes also. The purpose of this system, which at first sight would appear very complicated, is to secure adequate control over the entry of workers to the works and to prevent unauthorised entry. Owing to the very large forces employed at Siemensstadt as a whole, and in the individual works in particular, it is impossible for the doorkeepers to recognise all workers employed. It is therefore necessary that workers should have a pass to show at the door. Doorkeepers are in no case authorised to admit any person not provided with a pass indicating that he is an employee of the works. In cases where persons from one works must visit another works, they must be suitably vouched for in writing or by telephone before entry is permitted.

Strangers must be suitably accompanied.

The reason why passes are made out for a limited duration is that is was found by experience that abuse of two kinds took place. In the first place, owing to the fact that employment at Siemensstadt is regarded as good employment, the possession of a pass indicating that the holder was employed at Siemensstadt had a certain commercial value in securing credit from tradespeople, and business was in fact done by unscrupulous workpeople in selling their passes, pretending that they had lost them, and getting fresh ones. In the second place, a system providing for the unlimited duration of passes made it more difficult to prevent unauthorised entry into the firm. The new provision for limited duration guards against both these two abuses.

Salaried Employees

All applications for employment as salaried employee in all the Siemens Works at Siemensstadt, and in some cases for employment in the German works outside Siemensstadt, are received, sifted and examined in the Industrial Relations Department, Salaried Employees' Section. The Department receives applications froom the following sources :

(1) Recommendations for the promotion of particular employees.
(2) Requests from employees of the firm for promotion.
(3) General written applications from outside.
(4) Personal applications from outside.

(5) Applications received in accordance with information which has appeared in the technical or daily press.

(6) Applications through public employment offices.

(7) Applications through employment offices of professional or scientific organisations.

(8) Applications through high schools, universities, commercial high schools and technical schools.

(9) Applications in response to notification of vacancies posted on the Works blackboards, or in accordance with announcements appearing in the magazine of the Siemens officials' association *(Verein der Siemens-Beamten).*

(10) Applications in response to advertisements in the daily or technical press.

All applicants are required to give particulars with regard to their career and to attach copies of their certificates. They are also required to fill up a very detailed questionnaire in their own handwriting, giving information with regard to their previous training and experience. These questionnaires are then carefully examined by the Salaried Employees' Employment Office, and candidates who appear *prima facie* to be suitable for employment are, as far as possible, interviewed personally. In the year 1 October 1928 to 30 September 1929, over 25,000 applications for employment as salaried employees were registered by the Salaried Employees' Employment Office and over 9,800 personal interviews were given to candidates. A carefully classified card-index is kept by the Bureau of the Industrial Relations Department of all applications for employment. A card of special colour is used for applications which appear to be particularly worth retaining. When the individual works require salaried employees, they fill up and send in to the Salaried Employees' Employment Office a requisition form indicating in detail the grade of the employee required, the particular job for which he is needed and the qualifications required. The form used varies, with regard to contents and colour, according to the main category of salaried employee concerned. On receipt of the requisition form, the Salaried Employees' Employment Office ascertains from its card-index the candidates which seem most nearly to satisfy the needs of the work concerned, and the candidate or candidates selected are then sent, with their papers, to the particular works making the requisition. The responsible

officer in the works concerned decides whether the candidate is satisfactory or not, and returns him to the Salaried Employees' Employment Office, indicating on a special form whether he wishes to employ the candidate concerned, and if not, the reasons for his unsuitability. The criterion used in all cases of employment is solely the capacity of the applicant for the particular job. If both the Central Office and the particular works are in agreement as to the suitability for employment of a particular man, he is medically examined. The medical examination is strict. While the firm does not insist that only persons who are 100 per cent. sound should be engaged, it considers that it is essential for the efficiency of the work that men should be physically adapted for the particular work on which they will be employed. It further considers that it is a social duty to the rest of the workpeople to avoid the employment of persons suffering from diseases such as tuberculosis and others which would constitute a danger to the community of workers. If the candidate passes the medical examination, he is given a letter of engagement by the Staff Branch of the Works concerned indicating the conditions of employment offered, the rate of pay, etc., with a copy of the rules of service governing his employment. When the employee accepts employment, a personal file is opened for him which contains room for the following particulars :

(1) Papers relating to engagement, such as questionnaires, *curriculum vitae,* certificates, application, medical examination, and other correspondence in regard to engagement.
(2) Contract of service, letter of appointment, changes in salary, promotions, leave, supplementary work, etc.
(3) Reports, including confidential reports, encomiums, bonuses, results of examinations, special duties, warnings, and sanctions.
(4) Leave, sickness, medical reports, strikes.
(5) Advances and other forms of financial accommodation.
(6) Miscellaneous, including matters concerning insurance, taxes, etc.
(7) Papers referring to separation, dismissal, resignation, pensions, and widows' allowances.
(8) Correspondence after separation, either with the particular salaried employee or with the firm to which he goes.

The personal file is kept in the Staff Branch of the particular works in which the man is to be employed. Specially promising applicants who cannot be placed in employment at once are registered in a card-index in the Central Salaried Employees' Employment Office. The cards used in this index are of five colours, corresponding to the different main categories of salaried employees. Red is used for electro-technical employees, blue for machine construction and building construction, orange for miscellaneous technical employees, such as physicists and chemists, mining engineers, draughtsmen, laboratory assistants, foremen, etc. A yellow card is used for male commercial employees, and a white card for female commercial employees. Each card is provided with ten tabs, each corresponding to a sub-classification. The card index therefore makes it possible to control the numbers and categories of persons employed in each works in Greater Berlin—a total of some 20,000 salaried employees and 35,000 workers.

Voluntary separation is rare. Salaried employees, once appointed, retain their employment if possible. A special feature of the employment policy of the firm consists in emphasising the desirability of long service. With a view to this, various advantages are given to long service employees, details of which will be indicated in the section of this report dealing with welfare. In the meantime, however, the following table is of interest as indicating the proportion of salaried employees in the firm of various periods of service :

PERCENTAGE DISTRIBUTION OF SALARIED EMPLOYEES ACCORDING TO LENGTH OF SERVICE [1]

Years of service	Men %	Women %
1st year	15.2	18.4
2 to 3 years	14.6	18.0
4 to 5 ,,	12.5	16.0
6 to 10 ,,	22.2	24.8
11 to 15 ,,	6.2	16.5
16 to 20 ,,	13.5	3.7
21 to 25 ,,	8.8	1.9
26 to 30 ,,	3.5	0.5
31 to 35 ,,	2.5	0.2
36 to 40 ,,	0.8	—
41 to 45 ,,	0.2	—
	100	100

[1] These statistics refer to male and female salaried employees employed in the works at Siemensstadt. They do not include messengers.

The following table shows the percentage distribution of salaried employees according to age.

Age	Men Per cent.	Women Per cent.
Up to 20 years	3.1	15.2
21 to 25 "	15.4	29.3
26 to 30 "	23.2	22.8
31 to 35 "	16.4	14.9
36 to 40 "	13.0	8.6
41 to 45 "	11.5	4.8
46 to 50 "	8.2	2.9
51 to 55 "	5.2	1.0
56 to 60 "	2.7	0.4
61 to 65 "	1.1	0.1
66 to 70 "	0.2	—
	100	100

It is provided by legislation *(Kündigungsschutzgesetz* of 9 July 1926) that a longer notice of termination of employment must be given to all salaried employees over 25 years of age who have been employed for at least five years in the same firm. Salaried employees over 25 years of age who have been employed by the same employer for five years must receive 3 months' notice, for eight years 4 months' notice, for ten years 5 months' notice, and for twelve years 6 months' notice. These provisions do not, however, cancel certain provisions made for dismissal without notice in previous legislation, for example, the Civil Code *(Bürgerliches Gesetzbuch)* § 626, Commercial Code *(Handelsgesetzbuch)* §§ 70 et seq., the Industrial Ordinance *(Gewerbeordnung)* §§ 123, 124 and 133 *b*, and the Works Councils Act *(Betriebsrätegesetz)* §§ 84-90.

If shortage of work in some particular works should involve giving notice to salaried employees, every attempt is made to secure employment for them in other works of the firm. If, in spite of every effort to retain salaried employees in employment, it should be found necessary, owing to slackness of business, to make dismissals, the principles regulating such cases of dismissal are as far as possible agreed on with the Salaried Employees' Council. Other things being equal, questions of family charges are assigned great weight in deciding on the dismissals to be effected.

A considerable number of foreign salaried employees are in employment at Siemensstadt. All arrangements in connection with their passports, employment permits, etc., are made by the

Central Salaried Employees' Office. Most of these foreign salaried employees are Austrian, Czech and Hungarian, but a certain proportion are from England, America, Russia and other countries, in some cases people employed in associated firms who come to Siemensstadt to secure additional experience. Some 600 foreign salaried employees were in employment at Siemensstadt in April 1930.

Wage-earning Workers

In explaining the employment procedure adopted at Siemensstadt for wage-earning workers, it will be possible to be relatively brief, in view of the fact that, *ceteris paribus,* the procedure with regard to salaried employees is generally similar to that regarding wage-earning workers. There are, however, a certain number of differences which arise from the nature of the case. The main difference is that the employment of wage-earning workers is less highly centralised than that of salaried employees. This is due in part to the much larger number of wage-earning workers, and in part to the nature of their work.

Even in the case of wage-earning workers, however, the degree of centralisation with regard to employment matters is very considerable. The Industrial Relations Department, through its Central Wage-earning Workers' Employment Office, is responsible for (1) the general employment policy of the firm; (2) employment exchange work within the firm; (3) keeping of a central card index of all wage-earning workers employed in the firm; and (4) the direct control of the employment of disabled men. Each of these four functions of the Central Wage-earning Workers' Employment Office requires some comment.

(1) The general provisions with regard to employment and dismissal, in so far as they are not determined by legislation and collective agreement, are subject to negotiation between the management and the workers and are laid down in the Work Regulations agreed upon between the management and the works councils. Sections 3-4 of the Work Regulations deal with the question of recruitment and sections 5-7 with the question of dismissal. They indicate clearly the application of the legislative provisions and contain various provisions particular to the firm, for example, the provision that every wage-earning worker on

employment receives a copy of the Work Regulations which he must sign as an indication that he is in agreement with their application. Various particulars with regard to dismissal are also laid down, for example, the provision that every worker, on separation from the firm, is obliged to return all tools, instructions, work rules, passes and other articles and documents handed to him.

(2) In connection with general policy, the Central Employment Office is responsible for taking a general view of the needs of the firm as a whole. It has a central clearing house for employment within the firm. If in any individual works the necessity arises, owing to a slackening of business, to lay off workers, the employment office of the particular works is obliged to send to the Central Wage-earning Workers' Employment Office a notification on a form of the number and occupational classification of the workers whom it is proposed to lay off. The Central Office is then responsible for attempting to secure employment for these workers in any works which are making new engagements. The general principle is that new engagements from outside are not made unless no workers already employed in the firm are available for transfer. The Central Office is also responsible for attempting to secure vocational adjustment of workers who appear to be good workers but not entirely adapted to the work on which they are actually placed.

(3) The Central Office is responsible for keeping a central card index of all wage-earning workers employed in the firm. Detailed particulars with regard to the worker are kept in the individual works. The central index, however, makes it possible centrally to trace any worker to his individual works.

(4) Finally, the Central Office is responsible for the employment of all disabled men. In accordance with the Act on disabled men *(Schwerbeschädigtengesetz)* of 12 January 1923, employers are obliged for the first 20 to 69 workers employed to employ at least one disabled man, with one additional disabled man for each further 50 workers. The Central Employment Office is responsible for seeing that the number of disabled men employed in the firm does not fall below this quota. Disabled men enjoy certain advantages with regard to conditions of employment. In the first place, no disabled man can be dismissed without the agreement of the Central Welfare Office. If the Central Welfare

Office decides in favour of dismissal, appeal may be made against its decision to a disabled men's committee composed of one impartial president, two disabled men and two employers. The decision of this committee is final. Disabled men also enjoy certain advantages with regard to annual holidays with pay. They may obtain up to six additional days. At the end of February 1930, 1,257 disabled men were in employment at Siemensstadt. Every endeavour is of course made to secure that disabled men are employed on work on which it is possible for them, without injury to their health, to undertake a normal day's work. Disabled men suffering from shock, nerve troubles and lung weakness are employed, as far as possible, in the open air as caretakers, watchmen, messengers, etc. Disabled men suffering from disablement or amputation of the arm are employed as messengers, liftmen and watchmen. It may be mentioned that one man, both of whose arms were amputated, is employed as a liftman in the headquarters office. Men suffering from disablement or amputation of the legs are employed on mechanical work, such as inspection, in which it is possible to maintain constantly a sitting posture. The employment of the blind gives rise to special difficulties. but these have been overcome with remarkable success, and over 100 blind men are in regular employment at Siemensstadt, mostly on various forms of machine work. Details with regard to the employment of the blind have been specially issued by the firm in an illustrated pamphlet.

Apart from the four respects in which the employment of wage-earning workers is thus centralised in the Central Office, responsibility for employment and dismissal of wage-earning workers rests with the employment office in the individual works. There are at Siemensstadt some twelve such employment offices. Any department in a particular works requiring additional hands applies to the works employment office, which has three main sources from which to draw. The first is the Labour Exchange, with which the works employment office is in telephonic communication. In general specialised and skilled workers are engaged through the employment exchanges. In the second place, if the employment exchange cannot supply the workers required, they may be obtained by advertisement in the press. The last source from which workers may be employed is that of personal or written request for employment. A good

many requests for employment are received in this way from friends of workers already in employment with the firm.

The works employment office makes all applicants for employment fill up in their own handwriting a questionnaire asking for details with regard to personal circumstances and previous experience. The works employment office may subject the applicant to a simple practical examination adapted to the particular kind of work for which the worker is destined. intended to test, for example, eyesight, delicacy of touch, carefulness, etc. If the applicant is satisfactory on general grounds he is then sent to the foreman concerned for further technical examination. If the foreman concerned is satisfied with the applicant, he is then formally engaged by the employment office in the particular works.

In certain cases, but by no means in all, it is considered desirable that the applicant for work should pass a psychotechnical test. A special department is organised for this work. Most of the activities of the department are carried on in connection with the training of apprentices, but in certain cases applicants for employment are also required to pass these psychological tests. The tests have been devised with much ingenuity, and with every endeavour to render them practical and to ensure that they are carried out with regard to actual works conditions. For example, while candidates are passing the tests they are subjected to various interruptions and loud and unexpected noises of various kinds are produced.

Voluntary separations from the firms are rare, and workers with a long record of service make up a large proportion of the total employed. The following table shows the percentage distribution of the wage-earning workers in accordance with years of service :

Length of service	Male	Female
	Per cent.	Per cent.
1st year	37.2	41.1
2nd ,,	15.–	17.8
3rd to 5th ,,	20.4	23.8
6th to 10th ,,	15.2	12.3
11th to 15th ,,	3.3	3.4
16th to 20th ,,	4.8	0.9
21st to 25th ,,	2.4	0.5
26th to 30th ,,	0.9	0.2
31st to 35th ,,	0.6	
36th ,, and over	0.2	
	100	100

The following table is also of interest from the point of view of employment, for it shows the percentage distribution of wage-earning workers in accordance with age groups [1]:

Age group	Male	Female
	Per cent.	Per cent.
Under 20 years	10.4	15.1
21–25 ,,	15.4	22.2
26–30 ,,	13.3	20.5
31–35 ,,	12.7	14.7
36–40 ,,	13.4	10.2
41–45 ,,	10.2	6.3
46–50 ,,	9.2	4.–
51–55 ,,	6.9	2.5
56–60 ,,	4.7	1.6
61–65 ,,	2.6	0.7
66–70 ,,	0.9	0.2
71–75 ,,	0.3	—
	100	100

Education, Apprenticeship and Training

Particular attention is devoted in the firm to questions of education, training and apprenticeship. The firm retains a strong conviction that while rationalisation and machine production have affected in many cases the position of the skilled worker, yet industry still needs, and needs more intensely than ever before, the highly skilled worker. It is true that industrial dislocation has resulted from the development of mass production and the advent of the automatic machine. Certain groups of skilled workers have been displaced and in some cases have almost been eliminated. But the new methods in industry have called for the development of higher skill than ever before in certain categories of skilled workers. So long as a machine is running it may be tended by unskilled workers, but the erecting of the machine and its maintenance require technical knowledge and skill of a high order. Specialised craftsmen are required, not only for the original setting up of the machines, but also for their maintenance and for their repair. For such work in connection with the highly complicated machinery now used, a specially skilled type of specialised worker is required.

Statistics prepared in the firm with regard to the percentage

[1] Both these tables refer to wage-earning workers in the works in Greater Berlin only.

of skilled workers employed before the war and at the present time show, as might be expected, that while in certain occupations the proportion of skilled workers has decreased, in highly skilled occupations it has increased. For example, the percentage of turners, which in 1907 was 4.3 per cent. of the total staff of the firm, has now fallen to 3.5 per cent., and the number of fitters which in 1907 was 2.5 per cent. of the staff, has now fallen to 2 per cent. On the other hand, the percentage of machine erectors, which in 1907 was 1.7 per cent., has now risen to 3.9 per cent. of the total staff, and the number of machine tool makers, which in 1907 was 2.9 per cent., has now risen to 4.3 per cent. of the total staff. The conviction of the firm that modernised industry will continue to call for the services of highly skilled craftsmen explains the interest which is increasingly taken by the firm in the training of apprentices and the continued vocational education of other categories of workers.

Apprentices

The systematic training of apprentices was begun in Siemens and Halske in 1908, and in the Siemens-Schuckert Works in 1910. Since that date over a thousand apprentices have been trained in the firm. Of this number 72.6 per cent. are at present employed in the firm ; 53.5 per cent. of the total number have been uninterruptedly employed by the firm, the remainder having left the firm and then returned ; 15.5 per cent. of the total number of apprentices have been appointed to the ranks of works officials. About 100 apprentices start their apprenticeship every year. The apprentices are carefully selected. There are about eight times as many applicants as room is available for. Preference is given to sons of persons employed in the works, provided that their educational qualifications are satisfactory. The number of apprentices trained in particular crafts varies in accordance with the anticipation of the firm of its future needs and the further needs of the electrical industry in general. Thus, the proportion of apprentices who have been trained to the total number of workpeople employed in the firm on particular crafts varies greatly in accordance with the firm's estimate of the probable development of industry. This is clearly indicated in the following table :

PROPORTION OF APPRENTICES TRAINED IN DIFFERENT CRAFTS

Craft	Number of work-people employed in the firm	Number of apprentices trained	Proportion of number of apprentices trained to number of work-people employed in the firm
			%
Moulders	81	35	41.7
Mechanics	2,389	311	13.0
Tool makers	1,126	121	10.7
Fitters	3,329	261	7.8
Electro-fitters	1,095	45	4.1
Turners	949	29	3.1
Smiths	110	2	1.8

Apprentices are trained in five apprentice schools in various works in the firms, both at Siemensstadt and elsewhere. The apprentice course lasts in general for four years; in certain exceptional cases only three years. In general the first two years are spent by the apprentice in the apprentice school in which he lays a sound foundation for his future craft. The apprentice training is both theoretical and practical. Theoretical work is carried on in classes under experienced masters, and practical work at the bench under the direction of specially chosen craftsmen. The third and fourth years are spent in the works and in the department in which the apprentice is to become specialised. Here he is not simply allowed to pick up information as best he can, but he is placed under the definite supervision of specially trained craftsmen. The last half year of the four-year course is spent by the apprentice in the apprentice school, where he passes through a final revision course with a view to the taking of his diploma. The careful training given, together with the systematic and careful selection of applicants, has resulted in the fact that remarkably high results are achieved by the apprentice school in the final theoretical and practical examinations which are conducted by an independent outside body.

Apprentices who have shown themselves particularly able may, after having spent two years after their apprenticeship in

the works of the firm as journeymen, receive a bursary enabling them to attend a crafts school or higher technical institution. All apprentices when they enter upon their course are informed of the possibility of obtaining such bursaries. The Foundation *(Lehrlingsstiftung)* was established in 1922, the date of the 75 years' anniversary of Siemens and Halske, and the number of bursars has now reached 88, 21 of whom were appointed during the last year. The bursary amounts to from 75 to 150 marks per month, varying in accordance with the economic situation of the bursar. The bursary may be held generally from two to three years according to the school attended, and may be extended to four years if the bursar is attending a technical high school. The selection of bursars is made in accordance with their capacities, but preference is given to the sons of work-people employed in the firm. On the conclusion of study, bursars generally return to the works as technicians or engineers : there is, however, no obligation to return to the firm.

Engineers

The firm attaches importance not only to the training of skilled craftsmen, but also to the training of engineers. Special attention is therefore devoted to the training of youths who intend to attend technical high schools and middle schools. At present there are in training at Siemens and Halske, 57 high school and 111 middle school improver engineers, and in the Siemens-Schuckert Works 54 high school and 59 middle school improver engineers. In the case of high school improver engineers, their practical training is divided into two half years, one of which is passed in the apprentice workshops of the firm before the beginning of the high school course, the other, after the passing of the previous examination for a diploma, being devoted to acquiring practical knowledge of the methods of the undertaking. The training of middle-school improvers takes three years. It resembles the training of apprentices, and includes everything which touches upon practical knowledge of special occupations, together with experience of the multiplicity of operations carried on and a bird's eye view of the whole field of production.

Commercial Apprentices

Special attention is also devoted to the training of commercial apprentices, of whom there are at present 69 at Siemens and

Halske, and 67 in the Siemens-Schuckert works. Young people to be accepted as commercial apprentices in the Siemens firms must possess the diploma *(Reifezeugnis)* of a gymnasium or other secondary or high school. The period of training is three years, the first three months of which constitute a probation. The first two years are passed in the works at Siemenstadt, and the last year in one of the sales branches. The object of the training is to give these apprentices on the one hand a clear knowledge of the various processes of production in the works, and in the second place, a practical training in the commercial activities of the sales departments of the firm. Most of these apprentices after the conclusion of their apprenticeship pass into the employment of the firm in its commercial departments or in technical bureaux as salaried employees. Some of them, after their apprenticeship, go to a commercial high school or university and then return to the firm. In such a case their apprenticeship lasts two years—one before and one after the high-school or university course.

Vocational Training of Commercial Employees

Specially capable commercial employees are selected for intensive vocational training. Some 200 students are usually in training at a time. They receive lectures of a general educational type, and also with regard to details of the work of the firm. Seminar classes give instruction in smaller groups of 15 to 25. The course also contains instruction in foreign languages. The aim of this course is to give the highest possible training to specially selected groups of commercial employees.

Vocational Training of Typists

Four years ago the special preliminary training of typists was introduced in the firm. Now a large proportion of typists on first engagement in the firm pass through a special course. If they satisfactorily pass the examination at the end of this course they go then to permanent employment in the various departments. The course is partly technical and partly general. The technical part includes training in the ten-finger system of typing, with special attention to style and beauty of typescript. Further, in order that the typists should understand the things they are typing, they are taken through the works and shown generators, transformers, cables, and telephonic and telegraphic

apparatus, etc. The principle is that if the typists are familiar with the things whose names they are typing, they will take a greater interest in their work, with resulting benefit both to themselves and the firm.

Vocational Education of Engineers

It was decided in 1922 to organise special vocational courses for young diploma engineers. Similar vocational training since 1925 has been given to graduates of technical craft schools. At present 134 such engineers are under training in Siemens and Halske, and 267 in the Siemens-Schuckert Works. The period of vocational training lasts from two to three years. The main object of the course is to give these young engineers a wide knowledge of the various departments of the firm. An acute problem in any great firm is that the specialist in some particular department generally knows nothing of what is being done in the next department. It is desirable that this tendency to too great specialisation should be corrected in the works engineers, and every endeavour is therefore made by the firm to ensure that its works engineers should obtain during this two or three years' vocational course a wide knowledge of the various processes of manufacture carried on in the various departments of the firm.

Training of Foremen

The firm recognises also that every endeavour must be made to enable the foremen to keep up to date, and to meet the increasing supervisory responsibilities imposed by modern industry. Arrangements are therefore made in all the constituent works to provide for continuation courses and special intensive courses for foremen. These courses include instruction in the application of modern technical methods, not only in the Siemens firm, but in other firms in the electrical industry, and also lectures with regard to questions of works control and management, accident prevention, and so forth. The purpose of these courses is to enable the foreman to perform his task with greater efficiency and with greater facility. It is recognised that while modern methods of production have affected greatly the position of the foreman in certain respects, he still remains an essential element in the process of manufacture, and from

the point of view of industrial relations his importance is greater than ever before.

Accidents and Health

Active collaboration takes place between the management and the workers with a view to the prevention of accidents. This collaboration is of three kinds.

(1) Collaboration takes place in accordance with legal provisions, notably those of the Works Councils Act, which provides that the Works Councils should collaborate with the management with a view to the prevention of accidents. An Order of the Ministry of Commerce provides further for permanent contact between representatives of the workpeople and the factory inspectors. Both these provisions are actively applied at Siemensstadt. As an example of the interest taken by the Works Councils in accident prevention, reference may be made to a proclamation addressed to all workers by the United Works Council. This proclamation begins : "Fellow workers ! Protect your life, protect your health, help to prevent accidents. The Works Councils have the duty, in virtue of the Works Councils Act, to combat accidents and dangers to health in the works. They need your support and your help. Inform the members of the Accidents Commission of even the slightest source of danger. Make proposals yourselves for the improvement of the safety measures in force. Be careful to observe the warnings against accidents." In this spirit the various works councils actively collaborate with the management of the various works in securing the observance of safety provisions and in making suggestions for improvements.

(2) In the second place, apart from legal provisions, voluntary arrangements exist in the firm for active collaboration between management and the workers. This collaboration takes place both through meetings of the Accident Commissions and through the issue of propaganda material. Workers are members of the accident commissions set up in the firm, and it is their duty to pay particular attention. in consultation with their fellow workers, to improvements that may be introduced in the already existing measures for avoiding accidents, and further to try to secure an increased interest on the part of the workers themselves in the observation of the various regulations in force.

From time to time special measures are adopted to stimulate interest in accident prevention in the firm. One of these occasions is the German "Safety First Week" *(Reichsunfallverhütungswoche)*. In connection with this week a special publication is issued by the firm with a message by Dr. Karl Friedrich von Siemens, a message from the United Works Council, and a series of articles illustrated with reproductions of posters giving practical advice with a view to the prevention of accidents. In the paper issued in February-March 1929, Dr. Karl Friedrich von Siemens contributes the following foreword. "Irreparable damage to the health and strength of the people results daily from accidents, many of which could be prevented by the observation of safety regulations. Everyone should help in the avoidance of accidents. In the field of accident prevention the cooperation of all employed in the Works is an urgent necessity." With a view to encouraging interest and furthering collaboration in accident prevention, prize competitions have been organised by the management. The purpose of these prize competitions is to stimulate interest in accident prevention among the workers. The 1929 competition contained three parts : first, a competition for the drafting of accident prevention posters, posters drawing attention to the danger of accidents with special reference to conditions in the Siemens Works. The second competition was for the composition of a striking motto, in verse or in prose, relating to the necessity and importance of accident prevention. The third competition was for an essay on the question : "How can I stimulate the interest of my fellows workers in accident prevention." For each competition five prizes were offered : first prize, 250 M.; second prize, 100 M.; third to fifth prizes 50 M. each.

(3) Collaboration between management and workers takes place, thirdly, through voluntary suggestions for improvements in accident prevention measures made by individual workers to the management of individual firms. Such voluntary suggestions are welcomed by the management and put into operation whenever practicable.

Every endeavour is, in fact, made by the firm to reduce the percentage of accidents. Elaborate guards are provided for machines, usually painted in red, and notices are prominently displayed where there is a particular risk of accident. Wherever possible, overhead power transmission gear is dispensed

with, machines being directly electrically operated or having their own motors. Special measures are taken to instruct new workers in the dangers of accidents, because it has been found that young and new workers are particularly liable to accidents.

In accordance with legislation, all accidents involving incapacity for work of more than three days must be officially notified. In the case of the Siemens firm, notification of such accidents must be made on a special form, in all cases in five copies, of which two copies go to the local police authorities, two to the appropriate section of the Insurance Company *(Berufsgenossenschaft der Feinmechanik und Elektrotechnik)*, and one copy to the Industrial Relations Department of the firm. Elaborate statistics are compiled on the basis of this information. It is not necessary here to quote all the details of these statistics, but the table on page 47 may be of general interest.

In order to bring home the necessity of special measures being taken to instruct newly-engaged workers in the necessity of accident prevention, careful statistics are also compiled showing the incidence of accidents in accordance with the duration of employment of workers in the firm. The following table shows the proportion of accidents occurring to workers of various periods of employment.

DISTRIBUTION OF ACCIDENTS ACCORDING TO DURATION OF EMPLOYMENT

Duration of employment	Number of workpeople	Percentage of total	Number of accidents	Percentage of accidents
	1	2	3	4
1 month	2,610	5.7	250	9.58
2 months	2,326	5.1	170	7.31
3 months	1,852	4.0	127	6.86
1st to 3rd month	6,788	14.8	547	8.06
4th to 6th month	4,270	9.3	301	7.05
7th to 12th month	6,618	14.4	492	7.43
In 1st year	17,676	38.5	1,340	7.58
Over 1 year	28,284	61.5	1,817	6.42
	45,960	100.00	3,157	6.87

It is clear from this table that the incidence of accidents is greater in the case of newly-engaged workers than in the case of those who have been a considerable period with the firm.

NUMBER OF ACCIDENTS IN THE YEAR 1928-1929

	Occasion and source of the accident	Total number of accidents notified	Percentage of grand total
I.	Miscellaneous	107	3.04
II.	Boilers, etc.	1	0.03
III.	Levers	1	0.03
	Cranes	1	0.03
	Lifts	7	0.20
	Total	9	0.26
IV.	Motors of all kinds	—	—
V.	Transmission gear	10	0.28
VI.	Electric current	24	0.68
VII.	Stamps	12	0.34
	Presses	116	3.30
	Other metal working machines	275	7.82
	Circular saws	55	1.56
	Other wood-working machines	9	0.26
	Operating machines of other kinds	52	1.48
	Total	519	14.76
VIII.	Miscellaneous falls	466	13.24
	Falls from ladders	37	1.05
	Falls from stairs	80	2.27
	Falls from above or to a lower level	62	1.76
	Falls on the level	314	8.92
	Total	959	27.24
IX.	Loading and unloading by hand	339	9.63
	Leverage	97	2.76
	Carrying loads	7	0.20
	Transport within the works	366	10.40
	Railway transport	23	0.66
	Water transport	—	—
	Total	832	23.65
X.	Tools and implements	845	24.01
XI.	Explosions	7	0.20
	Incendiary materials	49	1.39
	Hot and acid liquids	106	3.01
	Poisonous gasses and steam	21	0.60
	Damage to the eyes through splinters	30	0.85
	Total	213	6.05
	Grand total of notified accidents	3,519	100 %
	Total staff employed in the works to which statistics apply	45,960	
	Number of notified accidents per 100 workers	7.66	
	Experience shows that about 6 per cent. of notified accidents give rise to compensation for the first time, in other words, the number of such cases of compensation paid is about	211	
	Percentage of workers compensated	0.46	

Efforts made to reduce accidents showed good results in the last statistical period. The average number of accidents, including accidents not calling for notification in accordance with the law, amounted, per 10,000 working days, to 2.72 in 1928-1929, compared with 3.46 in 1927-1928. The number of accidents calling for notification amounted, per 10,000 working days, to 2.48 in 1928-1929, compared with 2.90 in 1927-1928. The number of accidents occurring on the way from and to the place of work showed, however, an increase, the figures being 9.8 per cent. of the grand total of accidents in 1928-1929 compared with 8.1 per cent. in 1927-1928.

Statistics are also prepared showing the number and proportion of accidents occurring in each of the individual works. These statistics, together with a graphical representation of them, are circulated with a view to encouraging competition between the individual works for the reduction of accidents.

In the matter of health also, collaboration takes place between the management and the workers.

In the first place, as far as possible, endeavours are made by the firm to prevent the engagement of workers suffering from contagious diseases. As has previously been mentioned, a medical examination is made of all salaried employees before engagement. It has not yet been found possible to extend this system to all workers, but this is being considered.

Once the worker has been engaged, every endeavour is made to keep him in good health. The firm attaches particular importance to the cleanliness of the workshops and to matters such as heating and ventilation. The removal of dust, sawdust, etc., is undertaken by forced draught conduits. In some of the works, in order to ensure satisfactory ventilation and at the same time avoid draughts, special arrangements are made by means of green and red electric lamps placed at easily visible spots to indicate on which side, on a given date, windows should be opened. Arrangements are also made for the complete aeration of rooms during the mid-day pauses. Special attention is devoted, in the case of work-rooms where this is possible, to the use of bright and warm colours, floral decorations, etc. The works are constructed in the most modern way from the point of view of light. Special attention is also devoted to the seating

of the workers and to comfort at the work bench. A special award has been given to the Siemens firm in connection with the "Sitz und Tisch" (seating and work-bench) exhibition organised by the German Labour Protection Museum.

Individual lockers are provided for all workpeople and full facilities are provided for washing (hot water, baths, toilet facilities, and so forth). In all the Works first-aid rooms are installed, with qualified first-aid men in attendance. These first-aid rooms deal not only with cases of accident, but also with cases of illness, weakness, etc., taking place in the works.

With a view to the prevention of industrial diseases, dangerous processes such as nickeling are performed by automatic machines, all acids being moved and pumped by compressed air.

It is recognised that the collaboration of the workers themselves is necessary in the maintenance of health, and the Works Councils actively co-operate in the preparation of posters and in the preparation of articles on personal hygiene which appear in the *Siemens-Mitteilungen*.

Insurance, Workmen's Compensation, Pensions and other Financial Benefits

In the fields of insurance, workmen's compensation, pensions and other benefits, a wide variety of systems is in operation at Siemensstadt. These systems may be classified in two main groups: (1) statutory systems; (2) non-statutory systems; further distinguished into two sub-groups: *(a)* those administered by the firm entirely at its own expense, and (*b*) those administered at the expense of the insured with financial and other support from the firm.

Statutory Systems

The extensive system of compulsory social insurance in force in Germany is of course applied in the Siemens firms. This system includes workmen's compensation for accidents, unemployment insurance, invalidity insurance, sickness insurance and salaried employees' insurance. The application of this State system in the Siemens works calls for no special comment, except in so far as the administration of the sickness insurance scheme is concerned.

For the administration of sickness insurance a works sickness fund *(Betriebskrankenkasse)* has been constituted in the Siemens firms, which is the largest industrial works sickness fund in Germany. The administration of the fund is almost entirely in the hands of the workers themselves. Its committee consists of one representative of the firm as chairman and 50 representatives of the insured. Of these 50 representatives, 44 belong to the free trade unions, 5 to the opposition trade unions (K.P.D.) and one to the national trade unions. The board of management of the fund consists of one representative of the firm as chairman, and 6 representatives of the insured; 5 of these 6 representatives belong to the free trade unions and one to the opposition (K.P.D.). The board of management is elected by the committee. The representative of the firm is the Director of the Industrial Relations Department.

The benefits provided by this fund, which is now in the twenty-third year of its activity, go considerably beyond those provided for by legislation. Contributions amount to 7½ per cent. of the basic wage. A member of the fund who wishes to obtain family benefits pays an additional flat rate of 5 pfennig per day. Sickness benefit is paid at the rate of 50 per cent. of the basic wage. Married men and other members having dependants at their charge receive from the fourth week of sickness 60 per cent. of the basic wage. Medical attendance is provided from the beginning of sickness. Benefit and attendance continue for 52 weeks. Pregnant women who have belonged to the fund for at least six months receive benefit at the sickness benefit rate for six weeks. During childbirth they receive medical and nursing assistance, and maternity benefit at the same rate as sickness benefit for a duration of ten weeks. If they feed their infants themselves they receive 50 per cent. of the sickness benefit for a period of twelve weeks. Death benefit is paid at the rate of 40 times the basic wage with a minimum of 50 RM. The family of members receives various benefits for a period of 52 weeks. Other benefits are also paid. The firm maintains convalescent homes at the seaside and in the country, managed and controlled by the fund; and special measures are also taken to deal with pulmonary diseases.

Non-Statutory Systems

A variety of non-statutory systems of insurance is administered either at the expense of the firm or at the expense of the insured with participation of the firm. Into the first category fall the following :

(1) All workpeople sent on the business of the firm abroad are insured against accident and death.

(2) All workpeople sent on the business of the firm to other parts of Germany are insured against accident due to any form of transport.

(3) A system of four pension funds has been set up by the firm. The operation of these pension funds goes back without interruption to 1872. The four funds, the provisions of which are generally similar, apply respectively to wage-earning workers, Siemens and Halske ; wage-earning workers, Siemens-Schuckert Works ; salaried employees, Siemens and Halske ; salaried employees, Siemens-Schuckert Works. These funds are supported entirely by the firm without any contribution from the workpeople. The pensions and other benefits are not paid in accordance with rates of pay or grades occupied by the workpeople but in accordance with the needs of individuals. There is one exception to this general rule, which is that all those who have been employed for 50 years with the firm receive as a pension the full wage which they were earning on completing the fifty-year period of service. The benefits paid include allowances to wives and orphans, funeral benefits, Christmas benefits, christening and golden wedding gifts and so forth. The benefits paid by these pension funds do not take account of the benefits that workpeople may be receiving under the various forms of State insurance, with the exception that a pension is not paid to a person receiving workmen's compensation benefit for accidents at a higher rate than would give him, if added to compensation benefit, 70 per cent. of the wage he was drawing at the time of his accident.

Apart from these systems of insurance and pensions entirely at the expense of the firms, the workers are also encouraged to participate in various forms of group insurance additional to State insurance :

(1) A group insurance system has been set up by the firm in conjunction with a life insurance company, the Gerling Konzern. This system provides life insurance benefits with a payment of premiums 10 to 15 per cent. below those normally charged for individual life insurance. The premiums paid under the special Siemens tariff are from 3 to 5 per cent. lower than those paid in other group insurance systems. These low premiums are made possible partly owing to the fact that the company is able to quote lower rates owing to the group system and partly to a subsidy from the Siemens firm. A variety of different life insurance systems is provided, and workpeople of the firm may choose any one of these. The particular system having been chosen, the contract is completed and the premiums are paid by the firm through deduction from the wages or salaries. If the particular workman or employee should leave the service of the firm, he can continue his policy by making an individual agreement with the Gerling Konzern, continuing to pay, however, at the group tariff rate.

(2) An arrangement has also been made by the Siemens firm with another insurance company, the Allianz und Stuttgarter-verein, to provide additional accident insurance. As in the previous case, lower rates than those normally charged are provided and a wide variety of different forms of insurance is open to the individual workman. In this case also premiums are paid by the firm through deduction from wages.

In addition to the statutory and non-statutory systems of insurance and pensions described above, the firms have in operation three schemes involving financial benefits to the workpeople, to which reference may conveniently be made at this point.

End-of-Year Bonuses

The system of end-of-year bonuses in operation at Siemensstadt has a history which goes back to the middle of the last century. The system originated in the so-called stock-taking bonuses paid to salaried employees and wage-earning workers at Christmas. In the case of salaried employees, this bonus was later transformed into a thirteenth-month pay in the form of a Christmas bonus. The system was reorganised in 1926-1927, with a return to the original character of profit-sharing.

The principle of the present system is that when a dividend of at least 6 per cent. is paid by the firm on its ordinary shares the Supervisory Board decides on a proportion of the net profits to be distributed among the workers. At first the workers entitled to participate in profits were those having at least ten years' service in the firm. This qualification has now been reduced to one of eight years. The bonus distributed varies from 60 to 200 RM., in accordance with the category of the worker. The number of workpeople classified by categories participating in the last bonus distribution, 1928-1929, was as follows :

176 master erectors and master representatives.
1,249 specially qualified workmen.
6,416 craftsmen.
4,442 other wage-earning workers.
3,379 women workers.

15,662 sum total of wage-earning workers (Germany).
23 per cent of total staff of wage-earning workers.
9,671 salaried employees.
33.3 per cent. of total staff of salaried employees.

Jubilee Gifts

All workpeople, on completing 25 years' service with the firms, receive a jubilee gift. This gift varies from 400 to 1,200 RM,. in accordance with grade. Up to the end of 1929, about 6,084 workpeople in the Siemens firms, including the Vienna works, had celebrated their 25th year's service jubilee. The number of jubilee workers still in service in the firms on 30 September 1929 was 4,505.

Salaried Employees' Savings Scheme

In order to encourage saving, the firms have made an agreement with the Siemensstadt Savings Bank to facilitate the deposit of savings in this bank by salaried employees of the firm. Salaried employees may deposit sums in the savings bank through the pay offices in the various works and receive receipts for the sums deposited from the bank within two hours of deposit. Interest is allowed on these savings accounts, at present at the rate of 7 per cent.

WELFARE

The firms have always paid particular attention to the welfare of their staffs. Some of the welfare institutions have a

history which goes back for eighty years. The purpose of welfare schemes must always be related to the conditions of the particular firm. Conditions at Siemensstadt, where the majority of the workers live a long way from their work and cannot go home at lunch time, have exercised a considerable influence on the form assumed by some of its welfare institutions. Thus particular attention is devoted to the provision of mess rooms.

Mess Rooms and Shops

In order to provide a hot midday meal for the workpeople, mess rooms have been established in all the works. Special rooms are provided for higher officials, salaried employees and wage-earning workers respectively. In these mess rooms hot mid-day meals are provided consisting in each case of one main course with other subsidiary courses at the choice of the individual consumer. The main course always consists of meat of some kind, with fish once a week, and potatoes and vegetables.

The meat portion consists of at least 100 grm. of meat, or 130 grm. of meat with bones. The charge for the main course is, in the case of salaried employees, 55 Pf., and for wage-earning workers 50 Pf. The subsidiary courses, soup, compôte, salad, fruit, coffee, cheese, etc., cost 10 to 20 Pf. each. Apprentices and messenger boys receive the midday meal free. The prices charged to salaried employees and wage-earning workers are not sufficient to cover the costs, and the firm contributes about 45 Pf. per meal in the case of salaried employees and about 30 Pf. per meal in the case of wage-earning workers.

The administration of the mess rooms is, with one exception, entirely in the hands of the firm. In this one exception, the administration is undertaken by a committee of the workers, with the assistance of the firm. The wishes of the workers are expressed either through special mess-room committees or through the Works Council representatives.

The fact that the various mess rooms are in the particular works makes it possible for the workpeople to reach them without delay during the midday meal hour. In one works the midday meal is brought in mess wagons to the work benches. About 44 per cent. of the salaried employees and 18 per cent. of the wage-earning workers regularly take their midday meal in the mess rooms. The main reason for the fact that but a small

proportion of the wage-earning workers take advantage of the hot meals provided is to be found in the convention of the Berlin worker to eat at midday a cold meal of bread and sausage. That the explanation is to be found in this convention is suggested by the fact that in the Vienna works of the firm almost 100 per cent. of the staff eat in the mess rooms, although the price of the meal in Vienna bears a slightly higher proportion to the wage than it does in Berlin. The only alcoholic liquor sold in the mess rooms is beer. If the workpeople prefer to bring their midday meal with them from home, the firm provides hot closets in which the meal may be kept hot.

In addition to the mess rooms, special shops are maintained by the firm in the works, at which various forms of foodstuffs and household articles may be obtained. The workpeople do not themselves come to buy in these shops, but give their orders to special messengers, one of which is employed for each 200 workers. These messengers are paid by the firm, and their sole duty consists in taking the orders of the workpeople in the particular works, fetching the goods from the shops and delivering them to the workpeople. The foodstuffs chiefly bought in the shops are bread and sausage. About 80-90 per cent. of the staff take advantage of the facilities afforded by these shops, where goods are sold at 10 per cent. lower prices, on an average, than they can be obtained elsewhere.

A central purchasing department is maintained by the firm to buy for all the mess rooms and shops. In addition, a special butcher's shop is managed by the firm which is responsible for all slaughtering and also for the preparation of ham and sausage, of which fifty different varieties are produced.

It may also be mentioned here that a bureau is maintained for the sale to salaried employees of products of the Siemens firm. Any such products may be obtained at a reduction of 33⅓ per cent. of the normal prices.

Homes and Institutions

The firms maintain their own convalescent homes on the shores of the Baltic and in the Harz Mountains. With the assistance of the Works Sick Fund, the workers may go for four weeks, receiving free passage money, free board and lodging, and the payment of pocket money, either, in the case of men,

to the convalescent home at Koserow, or, in the case of female workers, to the home at Ahlbeck. The former has room for 120, and the latter for 90 inmates. In cases where a change of air does not appear to be necessary, convalescent workers, male and female, may be sent to a home in Siemensstadt itself. The Siemens firm also possesses a holiday house, the Siemens-Etterphaus at Bad Harzburg, with accommodation for 60 inmates, to which officials and salaried employees of the firm may go for their holidays at a nominal cost.

For workpeople affected with lung trouble, two medical treatment centres have been set up by the firms ; arrangements have also been made with the lung establishment at Belzig, which has accommodation for 180 patients. An agreement has also been made by the firms with the Paulinenhaus Hospital, according to which preferential treatment is accorded to workpeople of the firms and members of their families.

In cases where the wives of workpeople are sick, the firm assumes, in whole or in part, the expense of domestic help in the household concerned. A children's home is maintained in Siemensstadt, to which women working in the firms may bring their children in the morning and leave them during the day until they are ready to take them away in the evening. In some cases fresh clothing is given to the children. With the Children's Home is associated an Infant Welfare Centre, in which free medical advice is given to mothers and expectant mothers.

In the school at Siemensstadt, a school nurse is maintained by the firms. In cases where children require change of air, they are sent, almost exclusively at the expense of the firms, to the Siemens Eleonorenheim, Neuhof, near Häringsdorf on the Baltic. Over 800 children in the course of the summer are sent to this home.

An Apprentices' Institute is also maintained, with gymnasium, reading-room, hobby rooms, etc., for the use of the Siemens apprentices after the hours of work.

Library and Magazine

The firms maintain a works library of about 33,000 volumes, which is at the free disposal of salaried employees and of wage-earning workers. Most of the volumes are volumes of general literature. Technical matter is not included in this library, but

in the special technical libraries of the particular works. A remarkable feature of this library is the wide use made of it. In the year 1928-1929, 400,000 books were lent ; about half of these were loaned to salaried employees and half to wage-earning workers. The number of books loaned has quintupled since 1914-1915.

The workers are not required to come to the works library to borrow or return books. Printed catalogues are available in the various works, and requests for books may be made out in the individual works and forwarded to the works library. The books are then delivered by members of the library staff to the works and obtained there by the workers. The ease with which it is possible to obtain books on loan is undoubtedly one of the reasons why the library is so largely utilised.

A special section of the library, containing some 3,000 volumes, has been established with a special view to the needs and desires of the apprentices in the Siemens Works.

In connection with the works library and under the direction of the division of the Industrial Relations Department devoted to its management, there is a section responsible for the organisation of general lectures, film representations, concerts and theatrical performances of special interest to the workpeople.

A Works Magazine, the *Siemens-Mitteilungen,* richly illustrated, gives information with regard to the Siemens firms and also contains articles of a general kind. The number for 1 March 1930, for example, contains a general account with illustrations of the various Works, with an indication of their principal products. A further article deals with the various loans contracted by the Siemens firms. One page contains the photographs of some of the jubilee workers ; another page a list of workers whose death has been announced. The Magazine also contains short notes with regard to new accessions of books in the works library and notes with regard to new products of the firm. One or two comic pages and some articles of general interest are also included. This Magazine is posted free to the homes of all the workers, and is not distributed in the works.

Clubs

The various Clubs of the employees of the firms are associated in the Association of Siemens Employees *(Verband der Siemens-*

Beamten). Some 7,000 salaried employees of the firm belong to this association. The firms supply free accommodation, free secretariat, and thus cover nearly 20 per cent. of the operation expenses of the Association. The other expenses are covered by membership fees, which vary from 3 RM. to 25 RM. per annum. The associated clubs include associations for the following activities: wireless, gardening, swimming, tennis, foreign language conversation, rowing, photography, stenography, orchestral and choral music, rhythmic gymnastics, philately, chess, shooting, glee singing. In addition, the Association maintains a welfare branch, providing friendly benefits in case of death. It also possesses a domestic economy branch, which provides for its members certain advantages in lower prices of goods of common consumption. The Association also maintains a shop of its own in which some such goods may be obtained. A magazine, the *Nachrichten des Vereins der Siemens-Beamten*, is also issued. This magazine, which accepts advertisements, contains information with regard to the activities of all the constituent clubs and also a certain number of general articles.

There are also in connection with the firms a Foremen's Club and an Apprentices' Club, the *Werner Siemens Jugendverein.*

Housing

With a view to meeting the need for housing at Siemensstadt, the firms undertook in 1922 the construction of a Garden City. In this Garden City some 500 dwellings have now been erected. Some of them are flats, others individual houses. Every house has a large garden attached to it. In the case of the flats there is a communal garden. The number of rooms per flat or house varies from two to five. Two other garden cities have also been constructed at Siemensstadt by independent companies with loans provided by the firms. Each of these two other garden cities contains approximately 500 dwellings. The total number of dwellings in the Siemensstadt garden cities, therefore, amounts to about 1,500. These houses are all of the most modern construction, with electric light and, in many cases, electric heating and cooking installations.

The firms have also been concerned with the provision of churches. Owing to the growth of Siemensstadt, an evangelical

church became necessary ; this is at present being built, in connection with a large new town-hall.

In the immediate neighbourhood of the Works temporary dwelling accommodation has been constructed by the firm for the housing of unmarried workers, usually specialists in some craft, who come to Siemensstadt to work in the firm, to accommodate them until they can find permanent quarters.

A part of the grounds in the neighbourhood of the Garden City has been set aside by the firm as allotments, and workers not living at Siemensstadt are granted allotments in this area. The firm also maintains a nursery from which plants and seeds may be obtained at a low cost by the workers, either for planting in their allotments at Siemensstadt or elsewhere.

Cost of Some Industrial Relations Services and Relationship to State and Private Welfare Organisations

The following figures indicate the cost to the Siemens firms of some of its industrial relations and welfare work. These figures refer to the annual outlay.

(1) *Social Charges Imposed by Legislation*

	RM.
Salaried Employees' Insurance	2,042,000
Invalidity Insurance	3,114,000
Sickness Insurance	4,644,000
Unemployment Insurance	3,291,000
Accident Insurance	1,825,000
Other social outlays outside Germany	1,198,000
Total :	**16,114,000**

(2) *Voluntary Social Charges*

	RM.
Dietary Assistance.	
Restaurants for workers and employees	1,272,500
Provision of Rest Homes.	
Own homes and contributions to institutions	300,000
Care of Children and Young Persons.	
Welfare centres, children's homes, school treatment, apprentices' homes, dietary care	587,000
Hygiene.	
Sport facilities, bath establishments, lung treatment, first-aid services	480,000

General Culture and Recreation.

Works library, educational facilities, lectures, etc.	199,000

Relief.

Various benefits, payment in addition to statutory sick benefit, relief of persons excluded from pensions, widows' pensions, jubilee gifts	1,603,000

Pensions.

Pensions and widows' support, etc.	6,221,000

Household and Dwellings Assistance.

Factory and home care	171,500

INDUSTRIAL SOCIAL POLICY IN CONNECTION WITH THE NON-INDUSTRIAL SOCIAL AND PUBLIC AND PRIVATE WELFARE INSTITUTIONS, WITH SPECIAL REFERENCE TO CONDITIONS IN GREATER BERLIN

Department	Company institutions and participation in non-company institutions	Social and public and private welfare institutions
I. Preventive health work.		
1. Construction of houses and laying out of gardens.	Siemensstadt Housing Estate Company. Small gardens in Siemensstadt.	Berlin municipal housing offices.
2. Sport.	Siemensstadt sports ground. Siemenswerder b. Spandau aquatic sports establishment.	
3. Rest homes.	Workers' rest home in Koserow and Eschenbach. Women workers' rest home in Ahlbeck. Women workers' rest home in Siemensstadt. Employees' holiday home in Harzburg. Commercial and industrial workers' holiday home.	
4. Dietary assistance.	Restaurants for workers and employees. Provision of milk during working hours.	
II. Industrial hygiene and accident prevention.	Bath houses. Casualty stations. First aid service. Transport of the sick. Pauline Hospital.	Factory inspectorates. Mutual insurance association for the electrical engineering and precision instrument industry. Steam Boiler Inspection Association. The German Society for Industrial Hygiene.
III. Medical aid.	Works sick funds. Pauline Hospital. Factory treatment. Rest homes. Medical aid foundation. Emergency funds.	Institutes for the care of consumptives. Associations for home treatment. Communal treatment. Berlin municipal welfare offices. German Red Cross.

INDUSTRIAL SOCIAL POLICY *(continued)*

Department	Company institutions and participation in non-company institutions	Social and public and private welfare institutions
IV. Care of the disabled.	Medical specialists (especially pulmonary). Factory treatment. Medical aid foundation. Emergency funds. Employment agencies. Pension funds.	Central Institute for the Care of Disabled Soldiers.
V. Care of children and young persons.	Welfare centre for infants and young children. School treatment. Factory treatment. Siemensstadt children's home. Children's rest home at Neuhof. Dietary care of young persons. Apprentices' home and sports.	Federal Institute for Combating Infant mortality. Berlin municipal offices for the welfare of young persons. Advisory educational council for orphans who have left school.
VI. Consumers' assistance.	Premises for the sale of provisions Supply of coal.	
VII. Provision for old age.	Pension funds. Jubilee Gifts. Emergency funds. Works sick fund. Savings bank.	State insurance institution. Federal insurance institution for employees. Welfare offices.
VIII. Educational work.		
1. General, not technical;	Works library. Art and lecture evenings. Siemens' bulletins. Encouragement of workers' associations.	
2. Technical: primary;	Apprentices. Clerical workers. Typing staff. Salesmen.	
continuation.	Engineers. Salesmen. Administration officials. Foremen.	German Association for Technical Education.

Conclusion

The working of industrial relations at Siemensstadt is the resultant of the operation of two factors which are often considered to be inconsistent: in the first place, the thorough-going application of the principles of scientific method to all industrial relationships; and in the second place, the development of essentially personal relations between the head of the firm and his workpeople, on the basis of an old tradition of family con-

tacts. The mere framework of industrial relations is, indeed, the same at Siemensstadt as in all other German firms, for it is constituted by legislation and collective agreement. The particular significance of Siemensstadt resides in the fact that it represents the filling in of this framework on the largest scale and in the most complete manner. The organisation of industrial relations in the Siemens firms has been carried to a very high pitch of efficiency. The industrial relations policy of the firms is very completely centralised in the Industrial Relations Department, and the application of the policy is loyally and effectively carried out in the works, where every detail is in charge of some highly qualified official. On the side of the workers, the fact that a large number of works council representatives devote their whole time to questions of industrial relations would appear to ensure that the interests and desires of the workpeople can be centralised, systematised and discussed with the representatives of the management with the fullest possible recognition of principles and attention to details. It would, however, be possible for such a system, however admirably organised, to be merely formal, failing to produce fruitful results in improved relations and closer collaboration. At Siemensstadt any danger of this kind would appear to have been effectually removed by the deep personal interest taken in industrial relations by the head of the firm, Dr. Karl Friedrich von Siemens, and the inspiration of his personal example. Siemensstadt is undoubtedly a remarkable example, in a firm of the largest size, of the maintenance of direct personal relations between management and the workers side by side with and in addition to the relations through representation provided for by the works councils and otherwise. It is a striking illustration of the view that the application of legal machinery for ensuring industrial relations is not inconsistent with the retention and even the development of freer and less formal contacts between management and the workers.

THE LENS MINING COMPANY

The Lens Mining Company, instituted as a private company in 1852 and transformed into a joint stock company in August 1920, obtained on 15 January 1853 the perpetual concession for mining work in the district of Lens, Douvrin and Meurchin. This concession lies in the North of France, practically equidistant from Arras, the capital of the Département du Pas-de-Calais, and Lille, the capital of the Département du Nord. It is situated about one-third of the way along from the Western end of the mining basin of the North of France, which extends into Belgium, past Mons, Namur and Liége, and then, with several breaks, into the Ruhr area. Taking the geographical distinction of the surface of coalfields of the Nord, the Pas-de-Calais and Anzin, it belongs to the Pas-de-Calais coalfields. The Lens concession is bordered on the South by that of Liévin, on the West by that of Béthune, and on the East by that of Courrières. It includes the town of Lens and the village of Loos in the Southern part, and the villages of Pont-à-Vendin, Vendin-le-Vieil, Wingles, Meurchin and Douvrin in the Northern part.

The Destruction of the Mines during the Hostilities from 1914 to 1918, and their Reconstruction

The Lens Mining Company, which was already one of the most important before the war, not only was forced to cease work, but had its mines completely destroyed during the hostilities. To-day, scarcely a trace of this destruction remains, and one can only admire the patient and determined effort which has been required to remove the last traces of the terrible struggle which took place for four years in the immediate neighbourhood, and even on the ground of the concession itself.

A quotation may be given from an article by Mr. Ernest Cuvelette, General Manager of the Lens Mining Company [1] :

At the Armistice, nothing remained but a heap of ruins. The whole concession, like the neighbouring concession at Liévin, had been destroyed, and the ground ploughed up by shells ; in the outskirts of the town and in the surrounding districts among the trenches of Hill 70, where the struggle was particularly fierce, the shell-holes were touching each other.

The work that had to be done by way of reconstruction can be shown by a few very expressive figures :

All the shafts had been blown up ;
23 pits entirely destroyed ;
No roads and no railways ;
8,000 houses to be cleared and re-built.
40 million cubic metres of water to be drained.
600 kilometres of underground rails to be re-laid.

A few months after the Armistice the work of reconstruction began, and in May 1919 the railway from Lens to Violaines, which is the main artery of the concession, was open for traffic. In July 1919 the work of clearing the debris was begun by large undertakings, a considerable network for power supply was constructed, provisional underpinning had to be erected in the old shafts, and, finally, on 2 November 1920, pumping operations began.

In 1924, when the similar mines in the coalfield of the Nord had reached their pre-war production, the pits in the Pas-de-Calais were still 20 per cent. short of this figure. Of the latter, Lens was the last to be reconstructed, because the devastation in that area, which had seen so many struggles, was unprecedented in history.

The Lens Mining Company has now reached its pre-war output, the last pit which had to be reconstructed having been opened on 1 March 1930. Ten years of work and a sum of over 1,250,000,000 francs (French currency) will have been required to achieve this.

Present Position of the Company

The Lens Mining Company has a capital of 225 millions, held by 40,000 to 50,000 shareholders, and employs 20,000 workers in the undertakings which it manages directly, including

[1] " L'Etat actuel de la reconstruction des mines de Lens ", *Bulletin de la Société d'encouragement pour l'industrie nationale*, May 1925. Paris.

14,000 engaged in underground work. According to law, women cannot be employed except on surface work, but the rules of the Company are still more restrictive, since no married women are employed. Even the number of girls is small, being only 935. The number of young persons from 13 to 16 years of age is 916, and the number of those from 16 to 18 years, 948. It may be added that the total number of salaried employees, including overseers, is 616, of whom 58 are engineers.

The following undertakings are directly managed by the Company :

(1) *For coal-getting.* This is done in 17 pits, with a total output of 14,500 tons per day, and 4,400,000 tons per year.[1] Of these 17 pits, 11 are near Lens and produce rich coal, while the other pits are in the Northern district and give poor coal.

(2) *Ancillary undertakings.* These are : a power station at Pont-à-Vendin, providing electricity for the whole concession ; coke furnaces in the same district, which take 40 per cent. of the output from the pits ; a factory for synthetic ammonia, also at Pont-à-Vendin ; a factory for calcium carbide and cyanamide at Wingles ; a factory for refining copper by electrolysis, and central repair workshops, also situated at Wingles. Two factories for briquettes, and similar preparations, situated at Meurchin and Douvrin respectively, complete the list of ancillary undertakings directly managed by the Company.

It is interesting to note that the Lens Mining Company also holds shares in the following undertakings :

(1) The Ammonia Company, whose factories at Wingles transform synthetic ammonia into nitric acid.
(2) A company for producing oil, tar, and their derivatives, with factories to the North-East of Lens.
(3) The Lens Financial and Industrial Company, recently set up for the manufacture of chemical manure, whose building is at present being constructed at Douvrin. This latter company is, indeed, a branch of the Lens Mining Company, and has the same Board of Directors.

Finally, the Company has a less important share in the following undertakings in the district :

(1) The Franco-Belgian Company for the manufacture of glass by machinery (factories at Wingles).

[1] The average output in the Pas-de-Calais coalfield is 975 kilograms per worker per day.

(2) A joint stock company for explosives and chemical products (factories at Bauvin).
(3) A company for fireproof and pottery goods (factories at Douvrin).

The various undertakings are connected by a railway of a total length of 375 kilometres. In particular, all the pits are connected by railway with Pont-à-Vendin and Meurchin, where the coal is washed, since the pits themselves merely sort the coal. All the factories are also connected with the electric power station at Pont-à-Vendin.

Internal Organisation

Central Organisation

The Lens Mining Company has offices both in Paris and near the mines. The financial policy of the Company is settled chiefly in Paris under the supervision of the General Manager of the Company. The offices at Lens are under a Manager who is permanently stationed there. The services are divided into various groups, each under the orders of a chief engineer : underground service, surface service, materials branch, electric service, commercial and central services.

The central services, which are of special interest from the point of view of industrial relations, deal with questions of staff, accounts, litigation and supplies for the different units. The various activities and institutions of the Company on behalf of its staff are attached to the central services : education and physical educational work, workers' gardens, co-operative stores, etc. These services also control, either directly or, as will be seen later, through the various pits, the hygiene and social welfare work of the Company. The staff branch has 17 employees in the central offices at Lens, and 22 distributed through the workers' villages, which will be described later. It deals with the hiring of workers, the accident fund, the pensions fund, and general questions concerning workers' housing, which it supervises.

Organisation of the Pits

A complete study of the internal organisation of each of the undertakings controlled by the Lens Mining Company would

make this article too long. Since its chief activity is coal-mining, it will suffice to describe the organisation of the pits.

The 17 pits owned by the Company[1] are each under the orders of an engineer. He has two classes of persons under his orders : the underground workers and the surface workers. The surface staff is very small, consisting of an accountant, with three or four assistants, machine men, wagon tippers and coal sorters.

The underground workers are under the orders of a chief overseer, known as the chief overman, or principal chief overman, the latter being a higher rank granted by the Company to chief overmen who satisfy certain conditions of age and seniority. In order to make clear the various duties in the pits, it will be well to explain briefly the organisation of the work of coal-getting. Even before the War, the Lens Mining Company had adopted the system of coal-hewing by a single shift, while all the supplementary work (with a few exceptions, such as the timbering of galleries which were being extended) was entrusted to another shift which began work after the first had stopped. The Company believed, and still believes, that it is desirable to keep the two tasks entirely separate, and that the hewers work more enthusiastically and with more sense of responsibility when they resume the work at the point where they left off on the preceding day, while the work of clearing and repairing the galleries, adits, etc., is accomplished in the interval. In short, they feel more clearly that the section of the seam on which they are working is " their job " from the moment the gallery is opened until it is exhausted. The work is therefore better performed, and there is less risk of accident.

It was only during the years immediately following the War that the Company was forced to give up this method and introduce the two-shift system for hewers. When working conditions again became normal, it immediately returned to its old habits. Work begins in the mine at 5.30 a.m. and continues with the two successive shifts until 9.30 p.m. The only persons remaining in the mine at night are a few watchmen and workers looking after the horses which are used for the haulage of the trucks where electric haulage has not yet been introduced. It may be added that all mining companies of the North of France

[1] Each pit has two shafts : one for coal-getting and the other for ventilation.

do not adopt this method. Others, such as the neighbouring mines at Bruay and Liévin, use two shifts for hewing.

The system of distribution of the work between the shifts is comparatively simple, being as follows :

(1) The hewers are distributed over districts, each corresponding to a gallery or working face. They are classified as skilled miners or as ordinary miners, who, in turn, are subdivided into three classes according to their occupational capacity. The number of men in each district varies according to the size of the working face, but each group is under the direct orders of the chief hewer. The latter is a miner, like the others, receiving the same rates of pay as skilled miners, but accepting the responsibility of directing the work of his comrades. He is granted certain allowances in kind, which will be mentioned later. He has also the possibility of rising to the post of overman. The chief hewers are appointed by the engineer in charge of the pit, at the suggestion of the chief overman.

A certain number of districts taken together form a party, under the orders of an overman. The overmen themselves are under the supervision of the chief overman. This system is the general rule in mines. In the Lens pits there are four or five parties.

(2) The workers of the second shift are distributed into units corresponding to the districts. These units are grouped under the orders of overseers corresponding to the overmen, and these, in turn, are under the supervision of a chief overseer for the whole pit.

The overseer receives the necessary instructions from the overman as to the work which will have to be done when the first shift leaves. From the moment at which the shift for supplementary work begins work, it is under the orders of the chief overseer. He, in turn, is subordinate to the chief overman, to whom he must report on the work performed. The chief overman then gives his instructions to the overmen for the following day. This completes the cycle, and does away with any necessity for the direct intervention of the engineer of the pit so long as the work progresses normally. The small number of workers employed at night as watchmen and attending to the horses are under the supervision of an overseer, who is directly responsible to the chief overman.

Organisation of Workers' Villages

When the Lens Mining Concession began work the district was sparsely inhabited and it was therefore necessary to set up complete workers' villages and to meet all the needs of those who would inhabit them. These villages are chiefly in the Southern section, in the proportion of one village to each pit, under the supervision of the engineer of the pit, assisted by an attendant who is under the orders of the chief of the Staff Branch in the Central Administration. There are thirteen such villages altogether.

In addition to the workers' villages there are what are known as "centres". The centre includes all the health and social institutions necessary or desirable in the villages. There is not necessarily one centre for each village. In some cases the system of one centre for two villages has been adopted. In this case the management of the centre is entrusted to the engineer of the nearest pit.

There is no need to enter here into details of the organisation of the centres, which will be described at length in the section dealing with the conditions of life of the workers of the Lens Mining Company. It may be well to point out that the complete centre includes :

a dispensary with a doctor and three or four nurses (sisters of charity) ;
a church with a special organisation for the children ;
an infant school ;
a boys' school ;
a girls' school ;
a school for housekeeping and sewing ;
a dressmaking workshop ;
a workers' club and one or more sports clubs ;
a branch of the Distributive Co-operative Society of the Lens Mines.

The Mechanism of Industrial Relations

In the Lens Mines, as in the mines of other French coal-fields, there is a threefold system of industrial relations : in the pits (or ancillary undertakings), in the company and in district

agreements. The most striking characteristic is the traditional spirit of co-operation and mutual assistance. The special conditions of life of the underground workers and the sense of danger aroused by the thought of millions of cubic metres separating the worker from the open air, as well as the other dangers, which are still real, although fortunately less frequent, of falling earth, fire and explosions, create a spirit of fraternity which it would be difficult to find to the same extent in other industries.

The first stage of industrial relations is those in the pit.[1] It may be thought that this term is somewhat exaggerated in speaking of the relationships between miners and their chief hewers, overmen and chief overman, or between them and their overseers and chief overseer, or with the engineer of the pit. The miners themselves would be the first to express surprise if their conversations and discussions were thus described, for it cannot be too strongly stressed that the whole proceedings are of a family or at least of a friendly nature. They are nevertheless the basis of the system, which is strengthened more by tradition and by the natural accumulation of customs than by the application of any definite plan. The details of the system will be described in the chapter dealing with the working of industrial relations. At present it may be noted that the chief question dealt with is that of wages, and especially the fixing of task rates. In general an agreement is arrived at. If not, the questions are brought before the second instance, which is the management of the undertaking.

It is here that the trade unions and the workers' safety delegates take action. These safety delegates are provided for by legislation (sections 120 to 157 of Book II of the Labour Code). They generally act at the same time as the workers' representatives on trade union questions in the pit in which they exercise their functions.

In order to facilitate contact between the workers and the management of the mining undertakings, that is, industrial rela-

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[1] Or in the ancillary undertaking. Generally speaking this study refers only to the pits. All the provisions concerning pits are in principle applied in the ancillary undertakings, and the workers in the latter are included in the term "surface workers". The surface workers are not mentioned except when special provisions exist for them. In the group of surface workers, those employed in ancillary undertakings are mentioned only when a separate system is applied to them differing from that for surface workers as a whole. The same is true in the case of salaried employees.

tions, the miners' unions [1] have provided a central organisation of trade union sections in each undertaking, known as the Federation of Trade Union Sections of, say, the Lens Mining Company. This Federation acts side by side with the actual trade union and remains in close touch with it.

All the workers employed by the mining companies of the Northern French coalfields are organised (if they so desire) in the trade union of miners of the geographical area in which the company is situated : the Miners' Union of the Pas-de-Calais, the Miners' Union of the Nord, the Miners' Union of Anzin. The trade union consists of all the trade union sections taken together, there being one or two sections in each workers' or other village : generally one section for underground workers and one for surface workers, with a subsection for foreign workers in each case if required. Consequently, all the trade union sections of the workers in the undertakings controlled by the Lens Mining Company are affiliated to the Miners' Trade Union of the Pas-de-Calais. They are at the same time members of the Federation of Trade Union Sections of the Lens Mining Company.

It is the Federation of Trade Union Sections which takes action in the second stage of industrial relations. In the Lens Mining Company a meeting is held approximately every three months between the Manager, the chief engineers and the representatives of the Federation. The latter draw up a memorandum, which is communicated to the Manager before the meeting, stating all the claims which have not been given satisfaction in the first stage of industrial relations. These may be questions concerning task rates which have not been settled by discussion between miners, overmen, the chief overman and the engineer in the pit ; there may again be demands concerning the hygienic conditions of the workplaces or of the dwellings. Questions concerning safety are mostly dealt with in special memoranda submitted to the manager by the workers' safety delegates. The most

[1] The reference here is to the trade unions of miners affiliated to the General Confederation of Labour (also known as reformist trade unions). The General Confederation of Labour covers the majority of the miners who belong to unions in the Northern French coalfield. As far as the Lens Mines are concerned, all the miners who belong to unions are affiliated to the General Confederation of Labour.

By way of information it may be mentioned that there are about 100,000 miners in the Pas-de-Calais coalfield, 30,000 in the Nord coalfield, and 20,000 in Anzin. Of these the trade unions of miners affiliated to the General Confederation of Labour have a membership of 36,000 in the Pas-de-Calais coalfield, 7,000 in the North and 6,500 in Anzin.

recent list of claims received by the Management will be found in Appendix I.[1] Certain of its requests will not be perfectly clear to the reader until he has read the information given in the following section, but the text as a whole gives a clear idea of the nature of the demands and the spirit in which they are formulated. It should be added that if these questions are rejected they do not go to a higher instance except in the case of general questions, such as the fixing of the minimum wage or of the average agreed wage. There again an agreement is generally arrived at. If not, the demands are discussed at the following meetings until such time as satisfaction is obtained or until the workers' sections voluntarily withdraw their claims.

A description of the last stage of industrial relations, known as Douai meetings, will need more space. We will use, in addition to the information gathered on the spot, the general outlines given by Mr. Robert Fabre, Chief of the Economic Service of the Central Committee of the Collieries of France, in his *Memorandum on the Principles and Methods of Wage-Fixing in French Coal Mines,* written for the Preparatory Technical Conference on Conditions of Work in Coal Mines, held at Geneva in January last.

In order to avoid any confusion it must be stated at the outset that in no case does the central organisation of employers, the Central Committee of the Collieries of France, admit any higher instance than the district organisation. The agreements arrived at between employers and wage-earners in coal mines are drawn up solely for one coalfield or for a group of coalfields in one part of France. It is the Northern French coalfield, as described at the beginning of this article, which leads the way, and the methods adopted there are rapidly followed in the other French coalfields. No arbitration procedure is provided for and it will be seen later that the attempts made in this direction after the war have been abandoned. Here again, one can repeat the *leitmotif* of industrial relations in the French coal mines : an agreement is generally arrived at. Moreover, this agreement is reached without any intervention of the public authorities, without violence and without threats. In point of fact, there has been no strike in the Northern coalfield during the last ten years, and in the rest of the country there has only been a single

[1] See below, p. 94.

strike, lasting for about three weeks and limited to a certain number of mines in the Centre and South. This strike was brought about by the extremist elements and was expressly condemned by the trade unions belonging to the General Confederation of labour.

The historical development of these regional agreements is described by Mr. Fabre in the following words :

Even before the war, wage questions in most French coal mines were the subject of collective discussion between qualified delegates of the mining companies and the staff. These discussions were organised regionally.

Thus, from 1889, in the Nord and Pas-de-Calais, collective agreements known as the " Arras " agreements governed wage questions for the whole of the coalfield. In the Loire, too, the employers' and workers' organisations had concluded agreements for the settlement of conditions of work, wages, and pensions.

It should be observed that, besides dealing with actual wages, this system of regional agreements also allowed of settling related questions, such as that of pensions. As far back as 1902, that is to say, long before the establishment of the autonomous Miners' Pensions Fund by legislation in 1914, several Arras agreements had fixed the rates of the pensions then paid directly by the companies of this coalfield to their workers. The 1914 Act was to some extent based on the actual position resulting from the provisions agreed on by the parties concerned, and it maintained some of these provisions.

During the war, the special conditions imposed on all industries directly concerned with national defence led to the temporary suspension of these methods. Two-thirds of the workers employed in the mines were mobilised and became dependent on the military authorities. The Government bought virtually all the output of the mines and fixed prices as it fixed the prices of foodstuffs. It was logical that the public authorities — in this particular case, the Ministers of Labour and Munitions — should assume a direct and decisive part in fixing wages.

As from September 1918, in accordance with the procedure adopted in all war industries, the fixing of minimum wages was entrusted to regional mixed committees, sitting under the chairmanship of the prefect and composed of an equal number of workers' and employers' representatives designated by him. The local mixed committees were to discuss for each undertaking the establishment of wage schedules, with due regard to the minima fixed by the regional committees. . . .

If it was found impossible to set up a mixed committee, or if its work did not result in an agreement, the fixing of wages was to be referred to arbitration by the Ministers of Public Works and Labour.

The introduction of mixed committees in no way affected the practice allowed in the Northern coalfield, where the workers' and employers' delegates continued to meet and discuss as they had before. But in the Central and Southern coalfields, where contact was officially established in this way, the mixed committees failed almost everywhere, and it became necessary to resort to arbitration in most cases. This system was maintained until 7 July 1921, when a circular of the Minister of Labour, addressed to the prefects, confirmed the rejection

of the system of mixed committees, the suppression of arbitration, and the return to the traditional practice of direct contact between those concerned, by giving the latter full freedom to enter on and conduct the customary discussions on the lines indicated by local experience.

However, apart from the sole exception of the agreement of 21 December 1917, introducing a uniform rise not in wages proper but in the cost of living bonus for all coal mines then worked, special agreements were concluded, or arbitration awards given, either for the Central and Southern coal mines, or for the Loire coal mines alone, or for those of the unoccupied districts of the Pas-de-Calais, or, after the armistice, for the coalfields of the Nord and the Pas-de-Calais. Thus, even in the exceptional conditions prevailing under the system of war economy, there was only once a deviation from that principle of fixing wages by region or by undertaking which has constantly been observed in the French coal-mining industry; and even that exception related only to a fraction of the wage.

In order to make perfectly clear the spirit in which these conversations are carried out between representatives of the trade union organisations and the managers of the mines, some more detailed reference must be made to the circular of 7 July 1921 already mentioned. This circular states that the public authorities should look with favour on the resumption of direct negotiations which, although they do not always bring about an immediate agreement, at least enable the parties to define their point of view, to remove misunderstandings, and thus to pave the way for future agreements. It recommends the administrative authorities, when called upon to guide such negociations, to have the fullest possible regard for the local situation, traditions, precedents and the previous relationships between the organisations concerned. It expressly states that, contrary to the procedure hitherto followed, the prefects should not take the initiative in arranging for meetings between representatives of the parties concerned, except when asked to do so by the parties, or when they are certain, from enquiries which they have made, that their action will be favourably received by those concerned.

When direct negotiations do not lead to a successful conclusion and it is feared that a serious dispute may arise, the prefects can offer their services, but they must remember that there is no legal provision enabling them to impose arbitration on the parties.

In fixing wages, the mixed committees had based their action mainly on the variations in the cost of living. The Ministerial circular of 7 July 1921 points out that, in addition to the general

information on variations in the cost of living collected by the Ministry of Labour, account should be taken of local circumstances and, more especially, the conditions of working and marketing in the coal industry.

The circular, in short, merely confirmed the return to a well-established tradition, and it is therefore not surprising that the principles which it laid down should have been faithfully followed. None of the coalfields has, in any form, applied a system of sliding scales leading to an automatic change of wages according to the fluctuations of a simple or compound index. In discussing wages, the variations in the cost of living, measured either according to the indexes prepared by the District Committees or according to the lists of prices drawn up by the co-operative societies, stores and retail shops, have been taken into consideration. Account has also been taken of the position of the market, selling facilities, the needs of competition, the conditions of labour recruiting, the general economic situation and the rates of wages in other basic industries. There is no direct relationship between the scale of coal prices and the agreed wages of the miners, but over a long period it has been found that the wages curve and the price curve have followed more or less parallel courses.

With regard to the machinery for those meetings, it should be pointed out that they are not held at regular intervals. Sometimes the managers of the mines inform the elected representatives of the miners that they wish to examine with them the possibility of adapting wages to new variations in the cost of living, changes in the commercial situation of the mines, or some other factor affecting the working of the undertaking and the conditions of life of the worker. More often, it is the workers' representatives themselves who take the initiative in bringing about the interview.

For the Northern French coalfields, these meetings have, since the War, been held at Douai instead of at Arras, as formerly. They occur, on the average, two or three times a year, and are attended by ten or twelve managers of mines and the representatives of the Miners' Trade Unions of the coalfields of the Pas-de-Calais, the Nord, and Anzin. The main arguments brought forward, and the results of the interview, are noted in the minutes, which, signed by two representatives of the workers and two representatives of the managers, are published, and have

the force of an agreement. These agreements can only be terminated on one month's notice. A similar practice is employed in the other French coalfields.

Working of Industrial Relations

In order to study the working of industrial relations in any given undertaking, it is necessary to give a rapid survey of the conditions of work and life of the workers, and to consider at any given point how these relations are applied and what results are obtained. This is the plan that will be followed in considering the Lens Mining Company.

The Engagement of Workers

This is carried out in two ways : on the spot or abroad. In the case of recruiting on the spot, the family character, several times referred to in the preceding section, again appears. There is no centralised system for the engagement of workers. Miners in search of employment learn through their families or their friends that such and such a pit is in want of workers. They apply personally to the engineer of the pit in which they want to be employed. The engineer questions the worker and briefly examines his past history in the light of the certificates which he provides. If the result is satisfactory, he gives the applicant a voucher, with which he presents himself to the Chief of the Staff Branch at the Central Office.

As a rule, the formalities are carried out at once : photograph, finger prints, complete information as to past employment, the situation of the family, etc., all of which is noted on a special form known as the engagement file. A medical examination is then carried out under the direction of the Chief Doctor of the Company, assisted by two other doctors chosen in rotation from among those in the workers' villages. The eyes are particularly carefully examined by an oculist attached to the Company. The medical information is noted on the engagement file, which is kept by the Staff Branch at the Central Office. It goes without saying that the miner is not taken on unless his state of health is satisfactory. He then returns to the pit from which he was sent, with a certificate stating that he has been engaged. He thereupon carries out the necessary formalities

for registration in the Accounts Department of the pit. It should be added that these details apply, without distinction, to French and to foreign workers.

Recruiting abroad is carried out through the central organisation of employers : the Central Committee of the Collieries of France. This organisation transmits all the demands from the managements of the different mines which are affiliated to it, to the *Société générale d'Immigration,* a private organisation set up by the Central Committee of the Collieries to facilitate the importation of the necessary labour. At present, this organisation also works for other central organisations of French employers. The worker's travelling expenses, and 75 per cent. of the travelling expenses of his family, are refunded. The contract is for one year, during which 45 per cent. of the travelling expenses of the family are deducted from the worker's wages. When the contract is terminated, whether voluntarily or otherwise, the employers' obligations cease.

The percentage of foreign workers employed by the Lens Mining Company is relatively high. The most recent figures are as follows : French, 69.15 per cent.; Poles, 18.79 per cent.; Yugoslavs, 4.79 per cent.; Belgians, 2.61 per cent.; Czechoslovaks, 1.70 per cent.; Hungarians, 1.35 per cent.; Italians, 0.88 per cent.; Portuguese, 0.24 per cent.; Spaniards, 0.14 per cent.; various, 0.35 per cent. At the moment (May 1930), the Company is not recruiting any workers abroad, since it has all that are required for its present production.

Stability of Employment

A miner who feels himself physically unfit, or who wishes to change his employment for any other reason, applies through the proper channels to the chief engineer of the pit. The latter very often arranges the matter, but, as a general rule, in the case of a change of occupation for reasons of physical unfitness, the miner has to submit to a medical examination by three doctors. He is granted a change of occupation when a certificate states that such a change is necessary. In the case of older workers who have been employed by the Company for quite a long time, the worker, who is moved to a lower-paid group, receives a higher wage than that of the group to which he is transferred, so as to compensate him, to some extent, for the loss of earnings which will result. This, of course, does not apply to the transfer

(retrogression) of a worker who continues to carry out the same occupation, as may be the case, for example, with hewers. Such action is never taken for reasons of physical unfitness, but is decided by the engineer in order to take account of decreased output in distributing the earnings over a group of workers.

It is extremely rare for a worker to be dismissed from a pit because of lack of employment. If such a step has to be taken, it is done only after the possibilities of employment in other pits, or even in ancillary undertakings, have been examined; this examination is carried out either by the chief engineer in charge of underground work, or by the engineer in charge of surface work, as the case may be.

On the whole, there is considerable stability of employment, as is shown by the number of workers who have obtained medals for thirty years' continuous service with the Company. This number is 1,400. The stability of employment is greater than before the War, even when account is taken of the floating element of foreign workers.[1]

Practically always the departure of workers is voluntary. Dismissal for disobedience or for insufficient output is quite exceptional.

Workers are given a week's notice. In the case of salaried employees, there is no fixed rule, as they are scarcely ever dismissed. In case of voluntary departure, the salaried employee is asked to give a month's or six weeks' notice.

There is no procedure for appeal in the case of dismissal. The worker is informed at the pit that he has been dismissed. In case of serious injustice, and particularly in the case of the collective dismissal of a certain number of workers, action would be taken by the Federation of Trade Union Sections. This Federation also intervenes in favour of workers who have been changed to a different category of employment or transferred within the same employment.[2]

All these provisions are applied in the same way to the staff of the ancillary undertakings.

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[1] In March, 1930, there were 400 foreign workers who entered the service of the Company, and 193 who left. This considerable movement of foreign workers explains why dismissal on account of unfavourable economic conditions is unnecessary. The mere fact of voluntary departures restores equilibrium in the labour supply.

[2] Cf. Appendix I, paragraphs 3, 4 and 9.

Hours of Work

All the staff employed at the surface comes under the Act of 23 April 1919, fixing the hours of work at 8 in the day or 48 in the week. The underground workers are covered by the Act of 25 June 1919, which also fixes the hours of work at 8 in the day, but with certain special methods of calculation.

The hours of work include both winding times for each category, from the entrance of the first worker of the category until the last worker of the category leaves the pit. In the Lens Mines, five minutes is reckoned for the descent of a category, and about twenty to thirty minutes' travelling time underground. A break of about twenty minutes is provided during the working hours for a light meal. The actual hours of work are therefore reduced to about 6 hours 50 minutes and even 6 hours 40 minutes. For the coal-getting shift (about 75 per cent. of the total number of underground workers, including haulers), the hours of work are reckoned from 5.30 a.m. to 1.30 p.m., with a break at 9 a.m. For the shift for supplementary work, the hours are reckoned from 1.30 p.m. to 9.30 p.m., with a break at 5 p.m.

In the case of surface workers, the hours of work of the workers and girls employed for sorting the coal synchronise with those of the hewing shift, and are therefore from 5.30 a.m. to 1.30 p.m. The hours of the others are from 7 a.m. to 11 a.m. and from 12 to 4 p.m.

The only persons working on a three-shift system are the machine men at the pits, the workers in the electric power station and those in coke furnaces. Their hours are from 6 a.m. to 2 p.m., from 2 p.m. to 10 p.m., and from 10 p.m. to 6 a.m.

The overmen and overseers have the same hours as the workers, with an additional hour of office work. The chief overman and the chief overseer have no fixed hours, but work under the same system as the engineers. It should be pointed out that they enter the pit later than the workers and leave it earlier, which, to some extent, compensates for the extra office work which they have to perform. The office clerks at the pits and in the ancillary undertakings, or at the central Office, have the following hours of work : 8 a.m. to midday, and 2 p.m. to 6 p.m.

The discussions with the staff on hours of work refer chiefly to the interpretation of the word " categories ", mentioned in the

Act. The Management of the Lens Mines, as of other French Mining Companies, as far as is known to the present writer, interprets the word "category" as meaning the party or group of workers under one overman. A party includes from 200 to 300 workers. The miners and their representatives consider that the category should include all workers who have the same occupation—for example, all those employed at the coal face, all those employed on haulage, or all those employed on supplementary work. The question has been brought up several times at the meetings at Douai, but it seems at the moment to have been settled. It will be noted in Appendix I that the meetings of the management with the Federation of Trade Union Sections of the Company have had to deal with demands for changes in the time-table. In the particular case referred to (paragraph 8), there is a demand from the workers in the workshop attached to Pit 16 that the midday rest should be from 12 to 1 instead of from 11 to 12.

The workers are not entitled to holidays with pay. Salaried employees, as well as overmen and overseers, have a week's holiday with pay, while engineers and higher officials have twenty-one days.

In addition to the weekly rest and legal holidays, the following three days in each year are considered as holidays : 1 May, Sainte-Barbe (4 December), and the Monday after "Ducasse", a fair which is held once a year on some Sunday which varies according to the pit or ancillary undertaking.

Wages

This is the sphere in which industrial relations will be found to work most actively. There is one distinction which must be made at the outset : the workers receive wages in cash and certain allowances in kind, which make a considerable difference to their total earnings. For the whole of the Company the number of workers paid by the day exceeds those paid by piece rates. The former group constitutes a proportion of rather less than two-thirds. Piece rates are found almost exclusively on underground work in the pits, and are subdivided into three main groups : wages of hewers, stone-men and haulers. In the first two cases the wages are paid by groups and are distributed according to fixed coefficients.

At present, for the whole of the Northern French coalfields, this distribution is carried out by classifying the workers into four classes. Skilled miners, including chief hewers, have a coefficient of 10, while others have coefficients of 9.3, 8.5 or 8. All these workers do the same work, but are classified so as to take account of differences in their occupational capacity. The engineer decides the class to which any worker shall belong, and may change him from one class to another.

Hewers' wages are calculated by the number of trucks filled, subject to two conditions. The trucks must each contain an average weight of coal. Those which are not sufficiently full are rejected, and therefore do not count in reckoning the wages of the shift. Moreover, those which are found during sorting operations to contain too high a proportion of minerals which cannot be used as fuel (stone and waste), involve a fine for the shift which is distributed over all the workers.

In fixing the price per truck, the chief engineer of the pit prepares a very simple scale, which takes account of the thickness of the seam. This scale is handed to the chief overman and overman. The actual price is fixed by the chief overman after discussion with the overman in charge of the working face in question, according to the scale, but allowing for the hardness of the seam, the difficulties of timbering and advancing the gallery, and any other general difficulties connected with the working face or the supplementary work which may have to be carried out. If the workers are not satisfied with the price fixed, they can discuss the question with the overman, who will examine the scale again and report to the chief overman, who, in turn, reports to the engineer. If the latter considers the demand to be justified, he may fix a different price from that originally stated. If he has any doubts as to the justification for the demand, he may carry out a time test, but it is only on rare occasions that this is necessary. It should be added that a time test is sometimes carried out as an experiment in the case of new galleries at the request of the overmen and in the interests of the workers.

A difficulty may arise from differences in the thickness of the seams. A seam may, for example, be 0.70 metres thick at the beginning (which is the average in that part of the coalfield worked by the Lens Mines), and as the work proceeds, it may fall to 0.60 or 0.50. In this case, the chief hewer reports to

the overman and the matter is brought before the chief overman and, if necessary, the engineer. An agreement is arrived at by raising the price per truck.

Every working group has a number, which is marked on a set of slips so as to identify the trucks when they arrive at the surface. The presence of the workers at the mine is checked at the lamp house, where each worker, before descending, hands in a token in exchange for his lamp ; it is also checked underground by the overmen. The earnings are therefore distributed automatically according to the class to which the miner belongs.

The rates of wages of stone-men and those employed in cutting galleries are fixed in proportion to the number of metres of rock cut. They are determined similarly to those of the other groups mentioned above, and can be discussed in the same way. No comments are necessary on the wages of haulers. This work is carried out by young workers, and often paid for at time rates, so as to avoid any injustice.

If no agreement can be arrived at in the pit, the workers request the Federation of Trade Union Sections to take action. Reference to this will be found in the Appendix showing the most recent claims made by the miners in this Company (paragraphs 1, 2, 3, 4, 5 and 9).

Finally (and this is where the third instance can take action), the wages of mining workers cannot fall below a minimum fixed by the agreements at Douai. When the earnings of a group at the working face are not sufficient to ensure this minimum the deficit is made good by the Company. The basic prices are then examined and revised. If the inadequate earnings are the result of bad work, the group is tested several times and, if necessary, broken up, so that workers who are clearly unfitted for the work can be transferred, or even dismissed.

The minimum wage fixed by the agreement of 1 October 1929, and at present in force for the whole Northern French coalfield, is 32.90 francs for miners with a coefficient of 10, and a bonus of 25 per cent. is added to this figure. This bonus, which will be found on all wages, varies over the whole coalfield according to the cost of living, the state of the market and working conditions, and must be agreed to at the Douai meetings.

In addition to the minimum wage, there is also an average agreed daily wage, which has been fixed by the same agreement at 35 francs for adult miners, plus 25 per cent. making a total

of 43.75 francs per day. This figure is used as the basis for establishing the scales referred to above. The actual average wages exceed the agreed average wages by an amount which varies according to the output and the economic possibilities. In the mines of Lens it is considerably higher. The wages in these mines, including the bonus of 25 per cent., are approximately as follows: miners, 45 to 55 francs per day; assistants (young workers), 30 to 35 francs per day. Surface workers are paid at time rates, and skilled workers earn about 40 francs per day. The girls employed on hauling trucks at the surface and sorting coal earn from 15 to 20 francs a day. Wages are paid once a fortnight, and the pay sheet shows the method by which the earnings, and the sum actually paid, have been reckoned, as well as the amount and nature of the deductions (for relief fund, pensions fund, housing, etc.).

Salaried employees are paid by the month. The following are a few approximate figures for certain of these employees: overmen earn from 15,000 to 20,000 francs a year, and chief overmen, from 20,000 to 30,000. There is no profit-sharing, except in the case of engineers.

In addition to these wages, there are a certain number of allowances, either in cash or in kind. The first group includes family allowances, which, in the case of workers, are 1 franc a day for the first child, 1.50 for the second, and 2 francs per day and per child for three or more children. These family allowances are fixed in the wages agreements drawn up at the Douai meetings.

There are also allowances in kind, the most important of which are the allowances of fuel, which involve a considerable expenditure for the Company. In March 1930, for example, these allowances amounted to 7,273 tons. For the distribution of fuel, the underground workers are classified in three groups, the first including workers with a coefficient of 10 who are married or heads of families, the second including other underground workers who are married or heads of families, and the third including underground workers who are not married and live alone, or with their parents, provided that the latter are not employed by the Company. The first group receives 6,900 kilograms per year, the second, 5,700, and the third, 4,800. Chief hewers receive 8,100 kilograms per year, which is, as has been mentioned, the only material advantage which they obtain from their special duties.

The surface workers are divided into two categories : specialists receive 7,500 kilograms per year, and labourers, 4,800.

There are also two categories of salaried employees. Those whose position is equal to, or higher than, that of overmen, receive from 7,500 to 8,500 kilograms per year, while the others receive 5,700.

There is only one allowance of coal for each family, but the following supplements are provided : when three workers or salaried employees employed by the company share the same dwelling or when the family numbers 7 persons or over, but less than ten, there is an extra allowance of 1,200 kilograms per year. If four workers or salaried employees of the company share the same dwelling, or if the family consists of ten or more persons, the extra allowance is 2,400 kilograms per year. There are also distributions of old wood. All these allowances of fuel may form the subject of workers' claims.[1]

Housing is a further advantage, and a considerable one, granted to the workers and salaried employees of the Lens Mining Company. It is in reality a form of wages in kind. In principle the Company finds accommodation for all its workers. The houses are neat and comfortable, of varying dimensions according to the size of the family. All have an enclosed courtyard with a wash-house, wood-shed, rabbit hutch, hen-run and pigeon house. In addition, each house has a garden of an average area of 370 square metres. On the basis of present prices, it may be estimated that each of these gardens can give an annual produce of vegetables, fruit and flowers worth about 1,200 francs. The company had those houses built for its workers and devoted a sum of 400 millions to their reconstruction after the war. There are now 9,953 houses providing accommodation for 41,000 persons. The monthly rent paid by the workers is 11 francs for three rooms and 15 francs for six rooms, which is not even enough to cover the cost of repairs.

The accommodation is distributed by the engineer of the pit to which the village is attached. For this purpose each engineer has at his disposal sufficient accommodation to cover the average requirements, whether the houses are grouped in villages or not. Before entering into possession of his dwelling, the worker is given a copy of the regulations concerning the Company's

[1] Cf. Appendix I, paragraphs 1, 3 and 7.

workers' houses. He must sign the declaration on the last page of these regulations, accepting all the conditions and obligations. A copy of this is given in Appendix II.[1] A certain number of documents are drawn up whenever the house changes hands, and are sent to the staff office. These are known as house vouchers, and in the case of salaried employees they must be approved by the general manager.

All applications for a change of dwelling are addressed to the engineer either directly or through the chief accountant of the pit. General questions regarding housing are dealt with by the Federation of Trade Union Sections.[2]

The facilities granted by the Lens mines to the Distributive Co-operative Society of its workers and salaried employees may also be considered as an indirect supplement to wages. These facilities are : the free provision of the buildings required by the Co-operative Society for its central office, its wholesale store and its branches ; the maintenance of the buildings and free transport of goods on the railway belonging to the concession. The number of co-operative members is 5,450 and the turn-over amounts to almost 22 million francs annually.

Social Insurance

Accident insurance is governed by the general legislation (Act of 9 April 1898 with later amendments). The total number of days lost through accident was 82,400 in 1929. There were 4,500 accidents, of which thirteen were fatal. The workers' safety delegates are immediately informed of any accident occurring in the district for which they are responsible. In the case of a serious accident (involving incapacity for work for more than twenty days) the management also reports to the State supervision service. If the original diagnosis of the doctor in attendance is twenty days or more of incapacity for employment, this service is immediately informed. Otherwise no report is made until the end of the twenty days. Two reports are drawn up in connection with every serious accident : one by the safety delegate and the other by the State supervision service. The

[1] See p. 96.

[2] Cf. for example, Appendix I, paragraph 1.

first is sent to the management of the company and the second to the Attorney-General, but it is only in very rare cases that the latter takes action. Usually the chief departmental mining engineer unofficially requests the company to take certain measures to prevent a recurrence of the accident.

No special propaganda for accident prevention is undertaken apart from handing to every worker, and obtaining a receipt for, an extract from the Decree of 13 August 1911 as amended by the Decree of 25 September 1913, containing general regulations on the working of mines for the production of fuel. The Company does not consider special propaganda to be necessary, because in the first place there are a great number of older workers who train the new arrivals and the apprentices, who are generally members of the same family or friends of the other workers, and in the second place, the causes of the accidents are frequently the same (falling earth, run-away trucks, etc.).

In connection with the question of accidents, it should be noted that the Company has set up a centre for radiography, ultra-violet rays and electro-therapy, also a centre for mechano-therapy for the retraining of the victims of accidents. This institution is also at the disposal of all the workers and salaried employees of the company and their families.

Sickness insurance is carried out by the Mutual Aid Society of the Lens mines, which has been in existence for more than thirty years, in conformity with the Act of 29 June 1894 concerning mutual aid and pensions for miners. Equal contributions are paid by employer and worker. A copy of the rules of the fund are handed to each worker, who must sign a receipt. Two Articles should be particularly noted: Article 3, which lays down that membership is compulsory for all workers and salaried employees, and Article 6, which entrusts the management of the fund to a committee, two-thirds of whom represent the members, while the other third is appointed by the management. The Mutual Aid Society employs specialists for diseases of the stomach and intestines, and diseases of the ear, nose and throat. It also possesses a dental clinic and utilises the centres for radiography and mechano-therapy of the Company. All these institutions are at the disposal of the families of members. In 1929 the number of days of sickness was 231,485. The workers are not subject to any periodical examination because there have never been any occupational diseases.

The Company does not carry out any special health propaganda apart from distributing the regulations (Decree of 13 August 1911) mentioned above. Any complaints or demands from the workers concerning hygiene and safety are lodged directly or through the usual channels in each pit or else through the Federation of Trade Union Sections.[1]

Invalidity and old age insurance is also regulated by the Act of 29 June 1894 (and later amendments). The contribution is 5.5 per cent. of the wages to be paid by the worker and an equal percentage to be paid by the company. After thirty years of service and at the age of 55, a pension of 5,000 francs a year is granted. This pension is paid even if the worker continues to work. The Company generally pays a supplementary pension to salaried employees provided they have been in the service of the company for a long time.

The Lens Mining Company also grants special allowances to salaried employees or workers who have been employed for thirty years in its service, and who have received the long service medal on this account. Each of these is granted a free share (worth about 1,400 francs), and the income from four other shares every year. Coal is also distributed to them free of charge at the rate of 3,600 kilograms per year. Finally, a subsidy of 15,000 francs annually is also paid to the Association of Long Service Medallists of the Lens Mines, which was set up in 1904 chiefly for the purpose of assisting those members "whose situation is particularly unfortunate".

Workers in receipt of a pension who have ceased work either of their own free will or at the request of the Company cannot continue to live in the Company's houses. The miners have protested against this for some considerable time, and the matter is mentioned again in the list of demands given in Appendix I (paragraph 13) along with a demand concerning the distribution of coal vouchers to pensioned workers (paragraph 1).

Social Institutions

The social institutions of the Lens Mining Company may be classified in the following three groups: child welfare work, workers' education, workers' recreation and sports.

[1] Cf., for example, Appendix I, paragraph 6 and 8.

Child Welfare

In the description of the centre attached to the workers' villages, mention was made of the dispensaries. Each of these has a doctor in charge and nurses, and was set up by the management for dealing with the victims of accidents. They are also placed at the disposal of the Mutual Aid Society for cases of sickness. They have, however, a third function, that of giving consultations free of charge with regard to infants. Children are admitted between the ages of 15 days and 15 to 18 months ; after that age they receive the necessary attention by visits from the doctor. Consultations are held once a fortnight, and the total number in 1929 was 777 in the 18 dispensaries attached to the mines.

The doctors who are in charge of the dispensaries receive their salary from different sources on account of their different functions. At present 60 per cent. is paid by the Mutual Aid Society, and the remainder is covered by the management of the mines, which also grants them free coal and housing.

Education

The Society has organised three kinds of schools : elementary, technical, and domestic. In principle, as was mentioned in the section dealing with internal organisation, each of the centres in the workers' villages has an infant school, a boys' school, and a girls' school. Elementary education is given to children of from 4 to 13 years. The total number of pupils is 5,837. The infant schools are mixed (children from 4 to 7 years), after which the children attend separate schools for boys and girls, each containing from five to ten classes, according to the size of the village. The children sit for the examination for school certificates when they have the necessary qualifications. The schools, which are models of cleanliness and as neat as the workers' houses, are entirely free and maintained by the company. According to law, the schools are inspected by State officials.

Evening classes are held separately for underground workers and surface workers. In the case of the former, the classes are held twice a week in six centres in the boys' school. They are usually attended by boys of from 14 to 18 years, and the total number in 1929 was 250. These evening schools are devoted partly to general education and partly to technical train-

ing. Special courses are organised by the engineers of the centres in which these classes are held to prepare pupils for the overmen's school in Douai. These courses are attended by forty young workers, but the number of those chosen to attend the school is much smaller, being only three or four each year. When they leave the school at Douai, they are, if they apply for it, engaged as surveyors or overseers or even in exceptional cases immediately as overmen.

The evening classes, both general and technical, for surface workers are held at Pont-à-Vendin, and are organised in a similar fashion.

For the last three years the management of the Lens Mining Company has organised a central course for workers who have distinguished themselves by their work or their intelligence, but who do not satisfy the necessary age conditions for the entrance examination to the overmen's school. This training, which is given at the central office outside working hours by engineers specially designated for the purpose, lasts for one year, the classes being held twice a week for an hour and a half. The number of workers at present attending these courses is 26. The company does not give any guarantee of promotion, but if the pupils get good results they stand a better chance of being appointed overseers or overmen at an early date. It should be added that the company also subsidies the municipal occupational schools in Lens.

There remains domestic education.[1]

" Each boy's school ", says Mr. Cuvelette, " has a school garden of from 10 to 12 ares, in which the young children from the age of nine onwards have their first lessons in gardening. The school garden has a section reserved for flowers, which is divided into two plots, the first being a small model flower-bed, which the children try to copy in front of their own house, while the other is kept for perennial plants. There is also a small nursery in which the children practise grafting and budding. The cultivation of vegetables naturally occupies the greater part — about two-thirds — of the garden. This section is divided into plots of from 12 to 16 square metres, each entrusted to two or three pupils of varying ages. The arrangement of this miniature

[1] In this part of the article the author has made use of a very remarkable lecture given by Mr. Cuvelette at the Musée social on 23 January 1925, on " Workers' Dwellings and Social Institutions at the Lens Mines ".

garden is left entirely to the initiative of the children ; the products are their property ; under the supervision of the teachers they learn to dig, sow, transplant, hoe and water, and, in short, they look after the vegetables like real gardeners. The border plots along the walls are kept for seedlings and transplanting. There is a special bed for growing plants for seed ; the pupils are taught how vegetables should be chosen and treated for this purpose. The soil in the concession is mainly calcareous, with a very thin layer of mould. As there is often no manure available, the pupils are taught how to prepare composts to be used as manure or as fertilisers. The company provides all the seeds and the necessary tools free of charge, and it also offers special prizes for the pupils who obtain the best results.

" This training is continued at the pit for adults. A notice is posted up in the yard showing a plan of rotation which will give the maximum output from the workers' gardens. Another notice, which is a real gardening calendar, shows every month the work which should be done in the kitchen garden and the attention required by trees. This is supplemented in the village by visits from the Inspector of gardens and plantations, who assists the gardeners with advice, and who has written for them an admirable little book entitled *Le Jardin du Mineur*, which is full of practical advice, and shows deep sympathy for our workers. "

Annual competitions create a spirit of rivalry among the miners ; they are held in June, and numerous prizes are given to the successful competitors, who meet at a banquet presided over by the General Manager of the Company. The judges, who are appointed by the General Manager at the suggestion of the Inspector of gardens and plantations, are pensioned workers and salaried employees with a real knowledge of gardening.

Domestic training is naturally more highly developed for girls. It is given in special schools of housekeeping which exist in five centres. There is a total of 235 pupils between the ages of 13 and 20.

" The school of housekeeping has a dressmaking and meeting-room, a dining-room and kitchen, a wash-house and laundry and a school garden with a hen-run and a rabbit hutch. The schools are open every day throughout the school year from 3 to 8 p.m. and on Thursday from 9 a.m. to midday. The daughters of salaried employees and workers employed by the

Company are admitted without formalities at their request. They do not go to these schools to obtain vocational training but merely to prepare themselves for their future tasks as housekeepers.

" In the workrooms the girls are taught all kinds of needlework and are given some instruction in cutting out. One day each week is devoted to mending : the pupils bring their own linen to be mended and work under the supervision of the sewing mistress. The other days are devoted to the making of new underclothing and simple garments. Everything made in the workrooms becomes the girls' property and the Lens Mining Company supplies all the necessary materials free of charge. Prizes are also given to each pupil by way of encouragement in the form of table, toilet or kitchen linen, which is a very acceptable addition to the girls' trousseaux.

" There are two mistresses for cooking. Two hours a week are devoted to practical exercises consisting in the preparation of a lunch or dinner, preceded by a lesson in theory which lasts for about half an hour. The girls prepare the meal in groups of four and five ; they weigh and prepare the vegetables and the meat, they select the necessary utensils, put the food on the fire, season it and supervise the cooking. The cost and the weight of all the substances used are marked in a notebook by the other girls attending the lesson. They thus learn to estimate the price of things and to realise that the most economical food may also be the most substantial. The cookery lessons are varied by certain hours devoted to other forms of housework or to gardening. All the pupils in turn have practice in washing, ironing and removing stains from clothes under the supervision of a mistress who points out the best methods.

" In the school garden the girl learns the principles of the work to be done by her father and her brothers in the garden of her own home and the way in which she can and should help them. She as housekeeper must remind them of the needs of the table and of the period for sowing or transplanting ; she will attend to hoeing, watering and the gathering of vegetables and she will also attend to the flowers. The practical work is accompanied by certain lectures on theory and courses on hygiene, domestic economy and household accounts. "

In addition, the *Office Familial Ménager* in Paris has for the last two years sent three mistresses to Lens who visit the

different villages and give courses in cooking, dressmaking, etc., for a period of six weeks or two months. These courses are intended for the wives of the workers.

The Mining Company has also set up dressmaking workshops for girls between 13 and 20 years of age who are not employed in the mines, in order to give them some remunerative occupation. The Company supplies the workroom, the necessary teachers and the electricity for driving the machines and for lighting. It does not supply the materials nor does it undertake to sell the goods. The girls work at piece rates for outfitters, and the sums earned are distributed between the girls without any deductions. The six workshops at present in existence employ 426 girls. Each workshop is supervised and managed by a committee consisting of ten workers or salaried employees whose daughters are working in the workshop. This committee meets once a year under the chairmanship of the engineer of the pit to which the centre where the workshop is situated is attached.

Physical education is compulsory between the ages of 7 and 13 years. It is given in the schools by the teachers under the supervision of the chief of the physical training service in the central administration. The teachers, male and female, are obliged, up to the age of 25, to attend courses of physical training. These courses are organised by the chief of the physical training service and are attended at present by 9 men and 24 women teachers.

Workers' Recreation and Sports

Each village has a workers' club under the management of a committee elected by the inhabitants. The Company supplies a building free of charge for this club. The committee appoints a manager from among its members and this manager is responsible for the sale of non-alcoholic drinks, which are the only ones permitted. The club is open on Sundays.

The Company also organises cinematograph performances with instructional films. These are given in each centre every week from the beginning of the winter until Easter. They are held in the girls' school, which is specially fitted out for this purpose, and the same hall can be used for theatrical performances organised by the pupils.

Lastly, the Company favours the creation of workers' sports clubs. An enumeration and detailed description of all these clubs would exceed the scope of this article. There are musical societies, clubs for gymnastics, archery, football and basket-ball and a society of pigeon fanciers. The Mining Company supplies the necessary ground free of charge. There is also an official band, organised by the workers and salaried employees, with a membership of 137, and the Company pays all the cost of uniforms, instruments and music and also organises courses in music and various instruments.

What conclusions can be drawn from this rapid survey of the relations between employers and employed in the Lens Mining Company ? The conclusion has already been suggested several times in the different chapters of this article, in the phrase used on several occasions by the manager and by the engineers in reply to questions : an agreement is usually arrived at. This is the characteristic feature of this undertaking, and, in the opinion of the present author, of the other mining undertakings in the North of France. Goodwill exists on both sides. Both parties have a sincere love of the mining industry, despite the difficulties of their work, its dangers and the monotony (more apparent than real) of their daily life at a distance from any large centre.

In the pits goodwill and *camaraderie* are found without relaxation of the discipline, which the worker realises to be necessary in view of the dangers by which he is constantly threatened.

The same spirit of collaboration and of devotion to common interests prevails in the discussions of the management of the undertaking with the representatives of the Federation of Trade Union Sections of the Lens Mining Company.

At Douai the representatives of the Miners' Union, while strongly defending the interests of the miners, realise that they must do nothing to endanger the future of the mining industry. The Company's representatives show the same desire to do all in their power to improve the welfare of their workers, and the result is that there has been no labour dispute in the last ten years.

This article has described industrial relations with regard to working conditions : recruiting, stability of employment, hours of work and more especially the fixing of wages. The same relations have been seen in the working of social insurance and the close collaboration between the Mutual Aid Society organised by the workers and the management of the mines. In each village the doctor in charge of the dispensary is at the same time an official of the management and an official of the workers' Mutual Aid Society. The appliances in the dispensary are used by both parties. There is no impenetrable barrier, no friction, no conflict of competence and not even any discussion.

Reference has also been made to the large share which the Mining Company allows to the workers in the control of social institutions, for which at the same time the Company pays most of the cost.

All these measures, like those which have been studied in other undertakings, should be widely known and may provide useful suggestions for similar industries in other countries.

APPENDIX I

Miners' Trade Union of the Pas-de-Calais

14 March 1930.

Sir,

I beg to submit the enclosed list of special claims on behalf of the underground workers.

I should be very glad if you would receive a delegation of the workers to examine these claims at an early date and at the usual hour (3.30 p.m.).

I have the honour to be, etc.

(Signed) LIÉVAL,
Secretary to the Federation of Trade Union Sections of the Lens Mining Company.

The General Manager, Lens Mining Company, Lens.

List of Claims

(1) *Pit No. 2 at Lens.*

(a) That the allowance of fuel for surface workers in summer should never be less than 4 quintals.
(b) Fixed rate of wages for repairers.
(c) The extension to other pits of allowances of old wood and an increase in the amount allowed.
(d) That the distribution of coal vouchers for pensioned miners should be carried out in each service and not at the central offices.
(e) That houses should be redecorated each time they change hands.
(f) Abolition of the deduction for tools (disks, overalls, etc.).

(2) *Cleaning of the Coal.*

(a) Improvement of the quality.
(b) That the deduction for dirty coal should be calculated according to the classification of the workers.

(3) *Pit 3.*

(a) That the workers who resume work at the coal face after a period of special work should return to their original class.
(b) That the allowance of fuel to workers transferred to a different class should not be reduced.
(c) That the grindstone should be driven by electricity.
(d) That the washing accommodation should be placed at the disposal of the workers as early as possible, especially in the case of the workers coming from Frévent.

(4) *Pits 4 and 5.*

(a) Transfers in pit 4.
(b) Low wages in pit 5.
(c) Lack of material in both pits.

(5) *Pit 7.*

(a) That the last workers to wash should have warmer water.
(b) That the workers from Wingles who work in pit 10 should be brought back to the yard of pit 7 near the wash-house.
(c) That the maximum weight of earth for reckoning deductions for dirty coal should be raised.

(6) *Pit 8.* That an endeavour should be made to remove the dust from the main galleries, because it causes great inconvenience to the workers returning to the foot of the shaft.

(7) *Pit 15.* That the allowance of fuel should be increased in the case of workers living in houses which are known to be damp (this demand applies to all villages).

(8) *Pit 16.*

(a) That surface workers should have their meal from 12 to 1 instead of from 11 to 12.
(b) That the safety devices for the cages should be working when the workers are using the cage (this question is a general one).
(c) That boards should be placed on the floor of each section of the cages when the workers are descending or ascending.

(9) *Pits 3 and 4 at Meurchin.*
- *(a)* Reinstatement of workers moved to a lower class.
- *(b)* Abolition of the rejection of trucks which are not sufficiently full.
- *(c)* Observance of the agreement concerning the wages of workers between 18 and 16 years of age.

(10) Lighting in village No. 7 at Wingles on Sundays and holidays.

(11) Electric light inside and outside in the village " of the 90 ".

(12) Installation of electricity in houses belonging to the Company and occupied by the workers in the communes of Wavrin and Annoeulin.

(13) Housing and heating for miners in receipt of pensions.

APPENDIX II

Regulations concerning the Houses belonging to the Company their Allocation, their Withdrawal, the Conditions of Tenure, Supervision, etc.

Article 1

The houses of the Lens Mining Company shall be occupied only with the permission of the Manager or of the engineers who have powers to this effect after the keys have been handed over by the superintendent of the village. The tenants shall not be entitled to demand anything in the way of interior fittings, changes or exchanges of houses and shall be obliged to conform with the instructions issued to them.

Article 2

The houses of the Lens Mining Company shall be occupied by the staff only for such time as they remain in the service or are not dismissed. The payment to be made in exchange for the accommodation may differ for each house and shall not be considered as rent, but as a fee corresponding to the general expenses of the Company for each building; the worker shall therefore not on this account consider himself as being a tenant.

Article 3

The various sums due by the occupiers shall be deducted from their wages. The occupier when taking possession of the house allotted to him, whether occupying it as a worker or in any other manner, shall undertake in taking possession of the house to leave the building as soon as he ceases to be employed or as soon as he is notified by registered letter.

Article 4

The occupiers of houses are prohibited from taking lodgers not belonging to the company, or unmarried couples, and in case of doing so their permit to occupy the houses shall be withdrawn.

Article 5

In principle the occupier shall not be permitted to carry out any trade in the houses belonging to the Company. If, however, as an exceptional favour such permission is granted, the permission shall be precarious and may be withdrawn if any complaint is put forward, if the nature of the business might endanger the cleanliness or the preservation of the building, or for any other reason of which the Company shall be the sole judge. Every request for a permit shall, moreover, state the type of trade which is to be undertaken.

Article 6

Occupiers are forbidden :

(1) to have within their houses stocks of straw, faggots, paraffin, or other combustibles ;

(2) to have farmyard animals or animals kept in special buildings other than goats, fowls, rabbits, pigeons, geese and ducks ;

(3) to keep in their houses explosives such as dynamite, gunpowder, percussion caps, fireworks, etc. ;

(4) to light fires in the rooms in which there is no fireplace or no tiled hearth, or to beat corn inside the house ;

(5) to carry live embers about the house or to deposit ashes therein ;

(6) to set up in the gardens attached to the houses any stack or supply of faggots or other combustibles without permission ;

(7) to burn straw mattresses at a distance of less than 15 metres from the dwelling house.

Article 7

The occupier shall be bound to maintain the house in good condition at his own expense. This shall not apply to the expenditure necessary for repairs (or for reasons of health) ; in this case the resultant expense will be borne by the maintenance fund.

When a worker changes his dwelling at his own request he shall pay the cost of whitewashing and the repair of any damage. The same shall hold good in the case of departure, whether voluntary or involuntary.

Article 8

The occupier shall not consume more than the quantity of water strictly required by him, and for this purpose he is expressly forbidden to leave the taps open or to alter the water fittings in any way whatsoever. The slightest damage to the water supply shall be at once reported to the superintendent of the village.

Article 9

Any occupier wishing to use the electric fittings shall communicate the fact when the house is allotted to him. He shall be obliged to take out a contract with the Lighting Company which holds the concession and shall be bound to pay the fees and various charges made by this company. In any case, whether he uses the electric fittings or not, he shall be prohibited from making any change or addition.

Any damage discovered shall be estimated and the cost of repair borne by the occupier. In case of any damage the occupier shall inform the superintendent of the village and shall not be entitled to make the repair himself.

Article 10

The houses shall be washed and the gutters cleaned twice a week on Wednesday and Saturday, at an hour to be fixed by the superintendent of the village, so that the cleaning may take place simultaneously. When one or more houses are not inhabited the inhabitants of the two nearest houses shall clean the gutter passing in front of those houses.

Article 11

The cleaning of latrines may not take place except during the months from September to March, unless special permission is given. It shall be carried out under the supervision of the superintendent, who shall order disinfectants to be used if necessary.

Article 12

Ashes and refuse shall be placed in boxes opposite the houses; they shall be removed by the appropriate service. The superintendent of the village shall fix the hours and days for the collection of refuse. The deposit of ashes or refuse in the streets is prohibited.

Article 13

Occupiers shall not be permitted to make any change or addition to the house which they inhabit or to construct any supplementary building or change in any way the exterior aspect of the houses. If in exceptional circumstances they are authorised to build a supplementary building, the latter must conform to the types laid down by the building service.

Under special circumstances, at a request submitted through the superintendent, the Company itself may build a dovecot or pigeon house. The occupiers shall be permitted to use the same on payment

of a monthly fee. If the house allotted to them is already provided with such supplementary fittings, the latter shall not be changed in any way even if they are not used.

In case of departure the occupier, no matter what his claim to be an occupant, shall leave any such building or any plantation in good condition without any indemnity being paid, even although he himself bore the original cost.

Article 14

All woodwork, locks, window-panes, tiles, etc., which are broken, destroyed or damaged in the dwellings by the occupiers shall be replaced at their expense. All voluntary damage inside or outside shall also be repaired at the cost of those responsible for it and fines may also be collected according to the seriousness of the case.

Article 15

When an occupier is on the point of leaving his dwelling the superintendent shall visit the house and the occupier shall pay all sums due for damage of any kind, for whitewashing, for occupation fees, etc.

Article 16

The superintendent may visit any house in his area and the occupiers must permit him to enter to ensure that the houses are clean and that all the provisions of the present regulations are observed. He shall inform the maintenance service of any repairs which are required.

Article 17

Any occupiers who infringe the present regulations shall be liable to a fine, without prejudice to any police penalties in case of offences against persons or property.

In case of a recurrence of the offence, of habitual dirtiness in the houses, or of damage to buildings, tiles, land, or plantations, as well as in the cases referred to in Articles 4 and 5, the occupiers may be ejected and may be dismissed from the service of the Company.

Article 18

The officials entrusted with the supervision and maintenance of order in the Company's property and with the maintenance of the houses are expressly prohibited from accepting any remuneration from the occupiers.

* * *

I, the undersigned, acknowledge having received from the Lens Mining Company a copy of the regulations concerning the Company's houses.

I certify that I have studied these regulations and that I accept all the terms, conditions and obligations laid down therein.

THE LONDON TRAFFIC COMBINE

The group of Companies forming what is generally but not officially known as the London Traffic Combine is engaged in passenger transport within the area of Greater London and it carries the majority of those who travel to and fro in that area. Before proceeding to describe industrial relations in the Combine it would appear desirable to give a few facts to indicate the scope and character of its work.

The Scope and Character of the Work of the Combine

The term "London Traffic Combine" is used to denote the transport companies controlled either directly or indirectly by the Underground Electric Railways Company of London, Limited, which is a holding company and was incorporated in 1902. The transport companies under its control are as follows :

(1) Metropolitan District Railway Company.
(2) London Electric Railway Company.
(3) City and South London Railway Company.
(4) Central London Railway Company.
(5) London General Omnibus Company, Limited.
(6) Metropolitan Electric Tramways Limited.
(7) London United Tramways Limited.
(8) South Metropolitan Electric Tramways and Lighting Company, Limited.
(9) Tramways (M. E. T.) Omnibus Company, Limited.

These companies can be divided into two distinct groups.

The first group is known as the Common Fund Group of Companies and consists of the first five companies named above, which are controlled directly through their share capital by the Underground Company. By the London Electric Railways Facilities Act of 1915 it was provided that the balance of revenue of all these companies, after providing for working expenses and other revenue liabilities, should be pooled and the available

balance divided amongst the several companies participating in the Common Fund in agreed proportions.

The second group, consisting of the last four companies named above, is known as the London and Suburban Traction Group of Companies; they are controlled directly through their share capital by the London and Suburban Traction Company, Limited, which is a holding company and which in turn is controlled through its capital by the Underground Company.

In addition to the transport undertakings referred to above, the Underground Company also wholly or partially controls a number of smaller undertakings which it is unnecessary here to refer to.

"What is most striking in London", wrote Disraeli in *Tancred*, "is its vastness." Equally might it be said that what is most striking in the London Traffic Combine is its vastness. A few figures, the significance of which will be indicated in detail later, will show the immense scale of the organisation.

The transport companies controlled by the Underground Company have a total capital of £68,000,000 and employ a staff of over 44,000 persons. The total number of passengers carried in 1929 was 2,175,000,000. The total number of car-miles run by the Companies' trains, omnibuses and trams in 1929 was 288,000,000.

The conception conveyed by such astronomical figures is pale and nebulous. Colour and form can be added to it by visitors to London from that most familiar of all the familiar sights of London streets, the unending stream of red omnibuses, and the ubiquitous illuminated signs of the underground railways which are ceaselessly engaged in passenger transport for some twenty hours out of the twenty-four.

Unity in the direction of the policy of all the Companies embraced in these two groups is ensured by the fact that Lord Ashfield, who is Chairman and Managing Director of the supreme holding Company, the Underground Electric Railways Company of London, Limited, is also Chairman of each of the other Companies in both groups; and that Mr. Frank Pick is Managing Director of each of the operating Companies in both groups.

From the point of view of management all the Companies in both groups are regarded as constituting a single unit. All higher administration is centralised at the head office at 55 Broadway, S.W.1. There is no duplication or overlapping. Thus, the Staff Officer is responsible for industrial relations throughout the

whole Combine. In spite of the complexity of the organisation of the Combine, and in spite of the complexity of the work it has to do, its operations in all the variety of its activities are inspired by a dominant unity of purpose and of policy.

Brief mention may be made in passing of the financial results of the operation of these Companies.

In 1929, the Common Fund Group of Companies paid in dividends on ordinary stocks and shares £1,127,147, representing an average rate of 5.69 per cent. Each of the railway companies paid dividends upon its ordinary stocks and shares in 1929 at the rate of 5 per cent. for the year, and the London General Omnibus Company Limited at the rate of 8 per cent. free of tax for the year.

The Tramways Companies, it should be pointed out, have only recently come completely under the control of the Underground Company. For the year 1929, the Metropolitan Electric and London United Tramways Companies did not pay any dividend on their ordinary shares; the South Metropolitan Electric Tramway and Lighting Company paid an ordinary dividend of 5 per cent.

In addition to their ordinary stocks and shares, the various Companies have a variety of Debentures and Preference Shares, ranging from 3 per cent. to 7 per cent.

The following table shows, for the Common Fund Companies, the average return per annum paid on total capital, after operation of the Common Fund, by the Underground Company and each of the operating Companies over a series of years.

AVERAGE PERCENTAGE RETURN ON CAPITAL PAID BY COMMON FUND COMPANIES, 1913 AND 1924-1929

Company	1913	1924	1925	1926	1927	1928	1929
U.E.R.	3.9	4.6	4.5	5.0	5.9	6.3	6.6
M.D.R.	3.0	4.1	4.1	4.1	4.2	4.5	4.5
L.E.R.	2.3	4.0	3.8	3.9	4.1	4.5	4.5
C. & S.L.R.	2.1	4.3	4.1	4.2	4.4	4.6	4.6
C.L.R.	3.4	4.1	4.1	4.1	4.1	4.7	4.7
L.G.O.	10.0	6.1	6.0	5.9	6.4	6.5	6.5
M.E.T.	4.26	1.88	1.84	1.77	1.70	1.64	1.58
L.U.T.	2.01	1.39	1.39	1.39	1.39	1.39	1.39
S.M.E.T.	3.23	5.09	5.09	5.13	5.13	5.11	5.11

The London Traffic Combine is inspired by the desire to be of the best possible service to the travelling community. This desire, embodied in a definite policy, is manifested in various ways. It is shown by the steady growth in the services given and the steady improvement in the facilities afforded for cheap, convenient, punctual and safe travel. Some figures may be given at this point to indicate the immensity of the services thus rendered to the travelling public. The following table indicates by category for the year 1929, as compared with the year 1928, the numbers of passengers carried, the number of car-miles run by Companies' trains, trams, and omnibuses, and the number of cars and omnibuses owned.

Item	1929	Increase over 1928
Passengers carried :		
Ordinary	2,011,640,435	40,277,898
Workmen	100,054,258	4,820,268
Seasons	63,541,894	4,202,401
Total	2,175,236,587	49,300,567
Average daily number of passengers carried	6,435,611	155,150
Total number of car-miles run by Companies' trains, omnibuses or trams :		
In relation to traffic receipts	280,763,620	6,828,632
Over all lines	288,161,517	7,047,502
Number of cars or omnibuses owned	7,190	396

A careful record is kept of all complaints received from passengers. In 1929 there were 11,097 complaints — only 5.1 per million passengers carried. Rather fewer than half of these were complaints against the staff.

Over a period of the last five years the volume of traffic controlled by the Companies has regularly and steadily increased. On the average there has been an increase of nearly 100,000,000 passengers per annum. Additional services have, however, been given in order to deal with this increase in traffic. Between 1924 and 1929 traffic has increased by 25 per cent., and the corresponding car-miles run have increased by 24 per cent. Additional service has, therefore, been given in accordance with the increasing needs of the travelling public.

And what is the price to the public of the services rendered? On all trains, omnibuses and trams, fares vary with distance, the minimum fare in each case being 1d. The following table shows for each of the companies the average rate of fare per mile and

Company	Average rate of fare charged per mile (pence)	Average length of journey possible for 1d. fare (miles)
M. D. R.	0.776	1.288
L. E. R.	0.862	1.161
C. & S. L. R.	0.723	1.384
C. L. R.	0.961	1.041
L. G. O. C.	0.956	1.046
M. E. T.	0.824	1.214
L. U. T.	0.837	1.195
S. M. E. T.	0.923	1.083

The Organisation and Administration of Industrial Relations

The London Traffic Combine keeps constantly in view that its aim is and must be a single one, namely, the transport of passengers from one part of London to another. Nothing is allowed to obscure that aim. It is, however, surprising how many different subsidiary operations are necessary in order to contribute to the carrying out of that purpose.

In addition to working the underground railways, omnibuses and tramways, the Combine operates its own power station, and its own repair shops, in which a certain amount of construction is also done, effects its own publicity and advertising, and carries out catering and a number of other subsidiary activities.

It is clear that no single form of industrial relations would be adequate to cover such a wide range of functions and occupations as the operations of the Combine involve; and in fact, as we shall see, there is considerable variety in the practice of industrial relations. This variety is, however, as the philosopher would say, subsumed within the dominant unity of the policy applied under the single direction of the Company.

The total staff employed by the Common Fund and Tramway Companies is, as we have already pointed out, over 44,000. The following table indicates by category and group of companies the division of this total into its component parts.

STAFF OF THE COMMON FUND AND TRAMWAY COMPANIES

Group	Administrative	Supervisory	Wages	Total
L.G.O.C.	1,239	1,156	27,596	29,991
Railways	1,021	370	9,308	10,699
Tramways	244	134	3,481	3,859
Total	2,504	1,660	40,385	44,549

The officer of the Companies primarily concerned with industrial relations is the Staff Officer. The Staff Officer is responsible to and reports direct to the Managing Director, but acts in concert with the head of the several departments in matters concerning these departments. The various departments into which the headquarters organisation of the Companies is divided are the following :

Department of the Secretary and Treasurer (Underground Company and Common Fund Companies) ;
Department of the Comptroller and Accountant (Underground Company and Common Fund Companies) ;
Department of the Chief Engineer (Railway Companies) ;
Department of the Chief Mechanical Engineer (Railway Companies) ;
Department of the Chief Engineer (London General Omnibus Company) ;
Department of the Operating Manager (Railway Companies) ;
Department of the Operating Manager (London General Omnibus Company) ;
Department of the Commercial Manager (All Companies) ;
Department of the Publicity Manager (All Companies) ;
Department of the Chief Stores Superintendent (All Companies) :
Department of the General Manager (Tramways) ;
Extra-Departmental Officers :
The Claims Agent ;
The Legal and Parliamentary Officer ;
The Staff Officer :
The Estate Agent.

The duties of the Staff Officer relate to all Companies and comprise the review and check of salaries, wages, hours, conditions of service, and similar questions affecting the staffs as a whole to secure uniform and consistent treatment; the establishment and maintenance of records of salaries and classification of administrative staff; the conduct of the Suggestions Bureau; the conduct of the Employment Registry for administrative staff: the control of common services (such as central typing section, printing and duplicating machines, traffic drafting section, etc.); the management and control of mess-rooms, institutes, and other premises set aside for the staff, and also the catering stores and the costing work of the Catering Section; the supervision of welfare work; the control and supervision of the office buildings, furniture, telephones, and other office equipment of the Companies.

In the discharge of this dual responsibility of co-ordinating officer and personnel director he has reporting to him an assistant staff officer who is in charge of the catering service and incidental office services for the Combine, a chief assistant who is in charge of rates, wages, agreements, staff meetings, and the suggestion system for the Combine, and a principal clerk under whose direction come all the records pertaining to the administrative staff of approximately 2,500 people. These three principal assistants have a total of more than 50 people, acting mainly in clerical capacities, as aids in the execution of their respective responsibilities.

The organisation and administration for detailed and routine matters pertaining to industrial relations in the several affiliated companies and departments thereof are in principle decentralised relative to the Combine, with responsibility centralised in one individual in each operating unit. Under the principal officer of each of the operating units is a staff clerk, who is responsible for the maintenance and control of records and classification of the local staff. In the shop units of the Combine, where there are large concentrations of workers, there are labour superintendents reporting to the principal officer, who have responsibility for staff discipline and training.

As a part of his responsibility for the co-ordination of industrial relations for the Combine, the Staff Officer transmits all press items relating to labour conditions in England, which are despatched with a memorandum to the company officers most interested in the specific item, who in turn record their comments

as a guide to the Staff Officer in formulating a policy of action. As general aids to effective administration the Management prepares printed circulars describing operating practice, and detailed organisation charts setting forth staff duties.

Relations with Joint Bodies, Employers' Organisations, and Trade Unions; Staff Council Schemes

In connection with the organisation and administration of industrial relations the Combine is related to various joint bodies, employers' organisations, and trade unions. Thus it is associated with the Railways Staff Conference, which deals with working conditions on the railways. In connection with its omnibuses, the Combine may and does associate itself with other omnibus companies in its negotiations with the trade unions. Finally, in connection with its tramway work, it has representation on the National Joint Industrial Council for the tramways. It, however, prefers direct to joint negotiation, and would sever its joint connection if it disagreed with the joint policy.

The Combine also maintains direct and independent relations with the trade unions to which its employees belong. In the main the operating staff of the underground railways belong to the National Union of Railwaymen, the Associated Society of Locomotive Engineers and Firemen, and the Railway Clerks' Association; the operating staff of the buses and tramways to the Transport and General Workers' Union; the staff of the power station and sub-station to the National Union of Railwaymen and the Electrical Trades Union; the staff of the overhaul and repair shops of all Companies to the National Union of Vehicle Builders, the Amalgamated Engineers' Union, and the Transport and General Workers' Union. The clerical staff of all Companies are represented by the Railway Clerks' Association.

The general attitude of the Combine towards the trade unions is one of complete willingness to negotiate with regard to conditions of work. The Combine makes it clear, however, that none of its negotiations with the trade unions shall involve any interference on the part of the trade unions in regard to questions of management (including disciplinary matters).

Relations between the management and workers within the Combine are extremely good. Though the Combine was in-

volved in the General Strike of 1926, and, together with the Main Line Railways, in the National Railway Strike of 1919, it is safe to say that the origin of those strikes was foreign to conditions of work within the system of the Combine.

In explaining in detail the machinery of industrial relations it is necessary to keep distinct the three categories of work for which the Combine is mainly responsible, namely, the railways, the buses, and the tramways.

Railways

In the case of the railways, conditions of work are in general regulated by a series of collective agreements, and other instruments, the basic agreement being the National Agreement of 1920, concluded between, on the one hand, all the railway companies of the country and, on the other, the railway unions.

If questions now arise between the Companies and the railway unions with regard to new questions at issue, they are in the first place discussed directly between the Companies and the union concerned. Then, if an agreement cannot be reached the questions at issue may, by agreement, be referred to the Industrial Court.[1] If considered desirable, however, they may, in the first instance, be referred to the Railways Staff Conference with a view to ascertaining whether the Main Line Railways are likely to be involved, so that in such event the matters could be discussed by the Railways Staff Conference with the unions concerned and thereafter — failing agreement — go to the Industrial Court for a ruling.

In addition to this machinery for negotiations between the Companies and the trade unions, a scheme is in operation which provides for discussion and negotiation within the Companies between their own officers and representatives of the men employed. This is known as the "London Underground Railways Staff Council Scheme" and deals with questions of wages, hours, and conditions of service, and other matters affecting the staff. This scheme was agreed upon in 1921 between the Companies on the one hand and the National Union of Railwaymen, the

[1] For the functions and procedure of the Industrial Court, cf. *International Labour Review*, Vol. III, Nos. 1-2, July-Aug. 1921, pp. 41-50: "The British Industrial Court", by Sir William MACKENZIE.

Associated Society of Locomotive Engineers and Firemen, and the Railway Clerks' Association on the other.

One of the first provisions of this scheme — a provision which is common to all the industrial relations schemes in operation in the Combine — is that nothing in the scheme shall be taken to cancel the regular channels by which employees communicate with the officials and officers of the Companies on matters which concern them, it being understood that every employee in the first instance is to address his case to the official immediately over him, or through him to the official or officer authorised to deal with it. It is only if a satisfactory settlement should fail to be arrived at by this normal procedure that the special scheme applies.

The scheme provides a hierarchy of three series of committees or councils. Lowest in the hierarchy come "sectional committees" established in such numbers as are necessary to provide a recognised means for the discussion and settlement between the employees and the local officials of questions arising out of their employment, such as (*a*) the local interpretation and administration of the agreements governing employment; (*b*) questions relating to conditions of employment, i.e. working hours, reliefs, timekeeping, holidays, rosters, seniority, suggestions, and welfare; (*c*) questions of mutual interest affecting the efficiency or economy of operation. Some ten of these sectional committees have been set up, each comprising from six to fourteen members. Each sectional committee consists of a certain number of elected members of the staff, together with not more than a corresponding number of officials nominated on behalf of the companies. No sectional committee may come to a decision on any matter which does not fall within the authority of the officials who are members of the committee; nor may it make any vital alteration in existing practice in regard to the conditions of any grade of the staff until a fortnight has elapsed to enable the staff concerned to express their views thereon. While, however, sectional committees may not reach decisions, they may discuss questions not covered by this provision, and their recommendations may be put forward to the management of the Companies through the regular channels.

In the second grade of the hierarchy are "departmental councils" for the discussion and settlement between the representatives of the employees and the higher officials of the Companies of questions common to two or more sectional committees.

There are four departmental councils : (1) clerical, (2) traffic, (3) supervisory, and (4) engineering. The membership of the councils is composed, on the one hand, of members of the staff nominated by and from the respective sectional committees, and, on the other hand, of officers and officials, nominated by the Companies, not to exceed in number the representatives of the employees.

Finally, and at the apex of the scheme, there is an "Underground Railway Council". This deals with any questions which may concern two or more departmental councils ; it consists of the proper departmental councils sitting together. Any questions involving all departments come before the full Underground Railway Council, consisting of all departmental councils sitting together.

Each council and each sectional committee has two secretaries, one nominated by the Companies, and one, who need not necessarily be in the employ of the Companies, nominated by the elected representatives of the staff. No items may be placed on the agenda of a meeting except by agreement of the two secretaries. If a sectional committee, a departmental council, or the Underground Railway Council fails to come to a satisfactory settlement by agreement, the question under discussion is referred in the first instance to the management of the Companies, and subsequently, if necessary, to the "negotiating committee". The negotiating committee consists of representatives of the Companies and of the trade unions concerned in the scheme. This negotiating committee deals in particular with every alteration or variation of any agreement between the Companies and the trade unions governing employment.

To be effective, every decision, whether of a sectional committee, departmental council, underground railway council, or negotiating committee, must be by the agreement of both sides. With the exception of the last named, the committees remain in office for two years. The scheme contains details with regard to regulations governing the election of representatives of the staff to the sectional committees, and gives the schedule of grades of the staff covered by the scheme.

Minutes of the proceedings of the various councils and committees are carefully kept, roneoed and circulated. An examination of these minutes shows clearly that great use is made of this machinery for settling the difficulties and grievances which

inevitably arise in the day-to-day operations of such a complicated undertaking as the Underground Railways.

In the great majority of questions which come before the committees and councils agreement is reached between the two sides represented on the committees and councils. In some cases where agreement cannot be reached at first, the question is deferred and further investigation enables agreement ultimately to be obtained.

In addition to the general joint machinery which has just been described, provision is made for special machinery in the case of three other categories of men employed by the Underground Railway Companies to whom the General Staff Council Scheme does not apply, as follows. The first two of these additional schemes do not provide for joint committees, but set up representative shop committees of the men for negotiation with the Management.

(1) *Departmental Shop Committees and Lines Committee for Staff employed in the Mechanical Engineering, the Civil Engineering, and the Signal Engineering Departments, represented by the National Union of Railwaymen.* This scheme was accepted on 27 August 1925, on behalf of the Companies on the one hand and the National Union of Railwaymen and the shop staff concerned on the other hand. It consists of three departmental Shop Committees covering (*a*) the Mechanical Engineering Department, (*b*) the Civil Engineering Department, and (*c*) the Signal Engineering Department.

Above these three parallel departmental Shop Committees, there is a Lines Committee, the object of which is to provide machinery additional to that existing for the departmental Shop Committee, for the discussion and settlement (subject to National Agreements and/or Awards) of questions relating to rates of pay, hours of duty, conditions of service and other matters, which are of common interest or concern to the staff of the above-mentioned departments who are represented by the National Union of Railwaymen, and with which the departmental Shop Committees are not competent to deal.

The Lines Committee consists of seven representatives of the staff nominated by the three departmental Shop Committees.

(2) *Departmental Committees and Lines Committee for Electrical Staff employed in the Mechanical Engineering and the*

Signal Engineering Departments, represented by the Electrical Trades Union. This scheme was accepted on 31 October 1924, on behalf of the Companies on the one hand and the electrical staff concerned on the other. It consists of two departmental committees covering (*a*) the Mechanical Engineering Department and (*b*) the Signal Engineering Department.

In addition to these departmental committees, there is a Lines Committee which functions in a similar manner to the Lines Committee referred to above for the staff represented by the National Union of Railwaymen. The Lines Committee consists of six representatives of the staff nominated by the two departmental committees.

These two schemes are now in course of review, and will be modified in order to fit in with departmental reorganisations which have taken place; the main principles of the schemes, however, will not be altered.

(3) *A Local Committee* (which is a joint committee) *for Staff solely employed in Railway Electricity Generating Stations and Sub-stations.* This Committee was set up on 26 April 1928, in accordance with a national agreement of 22 August 1927, between all railway companies on the one hand and the National Union of Railwaymen and the Electrical Trades Union on the other hand, to afford facilities for discussion of questions relating to rates of pay, hours of duty, and general conditions of employment. The procedure under this scheme is as follows:

(*a*) An employee, or group of employees, who desire to raise any question within the scope of this scheme in which he or they are directly concerned, shall, in the first instance, make representations to the Foreman or other official in charge.

(*b*) If the answer to the application is not regarded as satisfactory, the employee or group of employees concerned shall refer the matter to their representative or representatives on the Local Committee, who will discuss the matter with the Assistant Engineer concerned.

(*c*) In the event of failure to secure agreement at the meeting between the Sectional Staff representatives and the Assistant Engineer concerned, the matter will be referred to the full Local Committee.

(*d*) In the event of failure to secure agreement at the full Local Committee, direct negotiations may, if required, be opened by (*a*) the District Staff Officer of the trade union concerned, or (*b*) the Headquarters Officials of the trade unions concerned, jointly or severally, with the Chief Engineer of the London Underground Railways.

The Local Committee is part of the general scheme of national organisation. It is, therefore, provided that:

If the trade unions desire to raise any question of a general character within the scope of this scheme, they may take the matter up jointly with the General Managers of the Railway Companies parties hereto.

A National Council to be established for dealing with national questions within the scheme affecting the employees concerned.

Any necessary negotiations in regard to such national or general questions will be conducted on behalf of the Railway Companies by the Railways Staff Conference, and on behalf of the trade unions by eight delegates to be appointed by the trade unions, and if, failing a settlement, it is decided to submit to arbitration any matter in difference, the reference shall be to the Industrial Court.

Omnibuses

In the case of the omnibuses the problem of industrial relations is in one sense simpler than in the case of the railways. This is due to the fact that whereas in the case of the railways basic conditions are generally fixed between on the one hand the Main Line Railways and the Underground Railways and on the other the three railway trade unions, in the case of the omnibuses basic conditions are regulated between the L.G.O.C.[1] on the one hand and the unions concerned on the other.

Conditions of work for drivers and conductors are regulated by an agreement signed on 31 May 1929, between the London General Omnibus Company, Limited, and two other Omnibus Companies on the one hand, and the Transport and General Workers' Union on the other. This Agreement took the place of an Agreement of 1926.

The old Agreement was terminated by the Transport Workers, and various demands for improvements in conditions were made. Finally, after some months of negotiations, this new Agreement was reached. It includes concessions with regard to meal times and annual holidays. Provision is made in this Agreement with regard to disputes arising in the interpretation of the Agreement. This provision is as follows:

Any dispute as to the interpretation of any clause of this agreement or of any agreed minute relating to practices, payments and

[1] With the L.G.O.C. are sometimes associated other omnibus companies, which, however, are of much less magnitude than the L.G.O.C.

privileges arising out of this agreement or covered by clause 14 hereof, shall be discussed at a meeting between representatives of the Companies and of the Union, and failing agreement such dispute shall be referred to a Board of Referees, consisting of two members to be elected by the Companies and two by the Union, with a Chairman to be mutually agreed on, or, failing agreement, to be appointed by the Minister of Labour.

In the case of the omnibuses, there is no general scheme corresponding to the Staff Council Scheme of the Underground Railways. The reason is that the organisation of the L.G.O.C. on the one hand, and of the Transport and General Workers' Union on the other, makes it relatively simple to arrange for direct negotiations between the management of the L.G.O.C. and the Union at every stage in the hierarchy of administration.

In order to understand this system of negotiations, it is necessary to know how the L.G.O.C. system is organised and how the Transport and General Workers' Union is organised.

The organisation of the administration of the omnibuses comprises a hierarchy of three elements—first, there is the garage, from which a number of buses start on the roads ; secondly, the district, of which there are 15, each including a certain number of garages ; and finally, the division, including a certain number of districts. There are three divisions, which in turn report to Headquarters. Officials of the Company are in charge of each garage, each district, and each division.

The corresponding local organisation of the trade union is as follows.[1] In each garage there is a branch of the Union, with its Branch Secretary. Each branch elects one representative to the divisional committee. The divisional committees, of which there are three, corresponding to the three divisions into which the Company is organised for operation, each elect two members to the Central Bus Committee. The Central Bus Committee, consisting of these six members plus two representatives of the workers in two other omnibus companies and a representative for the indoor staffs, is responsible, under the Executive of the Union, for all dealings with the Company with regard to questions arising in connection with the schedules and rotas on which the men work. The Union has four officials operating under the Central Bus Committee and London District Secretary, who

[1] The information in this paragraph with regard to Union organisation was supplied by Mr. Harold E. Clay, of the Transport and General Workers' Union.

undertake this work; one of these officials is the Schedules Officer, the other three are Divisional Officers.

If any grievance with regard to schedules and rotas should arise in a garage, it is normally brought to the attention of the Chief Depot Inspector (the head of the garage) by the Union Branch Secretary, and endeavours are made to settle the difficulty directly and immediately. If agreement cannot be reached locally, provision is made by an agreement of 10 July 1929 between the Company and the Transport and General Workers' Union for the joint consideration of the grievance. This organisation for dealing with complaints is as follows:

Schedule and Rota Complaints

1. Complaints which arise in connection with schedules or rotas shall, in the first instance, be considered by the Chief Depot Inspector of the garage concerned and a Schedule Representative of the Union.

2. In the event of the Chief Depot Inspector and the Schedule Representative of the Union being unable satisfactorily to adjust the complaint, it will then be formulated, on a form to be provided, to the Joint Secretaries of the Committee set out below.

3. The Joint Secretaries will then endeavour to reach a settlement of the complaint, taking such instructions or advice as may be necessary for the purpose.

4. If the Joint Secretaries fail to reach a settlement of the difficulty or if a question of principle is involved, the matter shall immediately be considered by the following Committee:

Representing the Omnibus Company:
Traffic Superintendent;
Superintendent of Schedules;
Staff Superintendent (Operating);
Joint Secretary.

Representing the Trade Union:
Schedule Sub-Committee—3 members;
Schedule Officer of the Union and Joint Secretary.

The Union shall be entitled to arrange for a local representative or representatives to be present either when the complaint is being discussed by the Joint Secretaries, or by the whole Committee. The Local Officials of the Company may also be present if required to assist in the consideration of the complaint.

The Joint Secretaries shall be responsible for the convening of meetings of the Committee; for taking minutes, and recording decisions both in the case of meetings between themselves, as provided in paragraph 3 above, and of meetings of the full Committee.

General Complaints

1. General complaints shall in the first instance be considered by the Chief Depot Inspector of the garage concerned and the Branch Representatives of the Trade Union.

2. In cases where a settlement cannot be reached locally, the matter will be referred, on a form to be provided, to the Divisional Superintendent of the Company and the Divisional Officer of the Union.

3. If the complaint cannot be settled in accordance with the procedure set out in paragraphs 1 and 2, the details of the complaint will be forwarded to the Traffic Superintendent of the Company and the London District Secretary of the Union.

Where complaints are lodged immediate attention will be given to them in the manner provided so that a speedy decision may be arrived at.

The machinery which has just been described for direct negotiation between the management and the Trade Union covers all men employed in the direct operation of the buses.

There are, however, four other main categories of workers employed by the L.G.O.C., who are not covered by this machinery and for whom special schemes have been set up.

(1) A Works Committee has been set up at the Chiswick Works, in which are situated the Repair Shops for the buses. The men concerned are, for the most part, members of the Transport and General Workers' Union, the Amalgamated Society of Engineers, the Electrical Trades Union, and the National Union of Vehicle Builders. This Works Committee is recognised both by the Management and by the trade unions concerned.

(2) Provision is also made in the case of the ticket-sorting staff for a Staff Committee to deal with questions relating to conditions of service and other matters affecting the staff. This staff is composed of women who work at Chiswick. This scheme was agreed upon by the Management on the one hand and the Railway Clerks' Association, to which the ticket-sorting staff belong, on the other.

(3) and (4) In the case of the administrative technical grades and traffic supervisory grades, provision is made for granting them representation for the discussion of conditions of work with the Management. These administrative technical grades and traffic supervisory grades comprise men in positions of authority and responsibility and they are not represented by the trade unions.

Tramways

The Companies are represented on the National Joint Industrial Council for the Tramway Industry, and also on its District Council for the Metropolitan area. Their representative has frequently been the Chairman of the National Council. The objects and functions of the National Joint Industrial Council for the Tramway Industry and its District Council are as follows :

Objects of the National Council. To secure the largest possible measure of joint action between employers and employees by the regular consideration and settlement of matters affecting the well-being and progress of the tramway industry as part of the national life.

It will be open to the Council to take any action that falls within the scope of this general definition. Its more specific objects will be the consideration and (if found practicable) settlement of matters relating to the following :

(*a*) The establishment and definition of functions of District Councils and Works Committees.

(*b*) Effecting the inclusion of all employers and employees in their respective organisations, and securing the observance by them of collective agreements.

(*c*) Wages, hours and working conditions which affect the industry as a whole. The rates of wages and conditions of service of the Supervisory, Administrative and Clerical Staffs shall not be within the objects of the Council.

(*d*) The machinery for the settlement of differences between the parties and sections in the industry.

(*e*) The measures for securing regular employment, while providing the public with the most efficient services.

(*f*) The improvement of conditions with a view to removing danger to the health of the workpeople and minimising accidents.

(*g*) The safeguarding of the rights of workpeople inventing or designing improvements in machinery and method.

(*h*) Training for the industry, and co-operation with educational authorities in arranging education in all its branches for the industry.

(*i*) Enquiries into special problems of the industry, including the study of the organisation and methods of the industry in this and other countries, and, where desirable, the publication of reports.

(*j*) The collection of statistics and information on matters appertaining to the industry.

(*k*) Representation to any appropriate authority of the needs and opinions of the industry in respect of any matters affecting the constitution and continuance of the Undertakings and the material well-being of all concerned in the industry.

(*l*) Any matters that may be referred to it by the Government or any Government Department.

(*m*) Co-operation with the Joint Industrial Councils for other Industries and other bodies to deal with problems of common interest.

Functions of the District Councils. The main functions of the District Councils shall be as follows:

1. To consider any matters that may be referred to them by the National Council, and to take executive action within their districts in connection with decisions arrived at and matters deputed to them by it; to consider any matters of interest to their district, including matters referred to them by Works Committees, and to take executive action with regard to matters that affect only their particular district, subject to the right of the National Council to veto any action if it be found to involve the interests of other districts; to make recommendations to the National Council.

Among the more specific functions falling under this head are:

(*a*) The consideration of working conditions, including the codification, unification, and amendment of working rules relating to holidays, juvenile labour, overtime, the shift system, and similar matters.

(*b*) The co-ordination of local working conditions.

(*c*) General district matters relating to the well-being of the workpeople.

(*d*) The consideration of safeguarding the rights of workpeople inventing or designing improvements in machinery and method.

(*e*) The improvement of conditions with a view to removing danger to the health of the workpeople and minimising accidents.

(*f*) Training for the industry, and co-operation with the educational authorities in arranging education in all its branches for the industry.

2. Co-operation with the District Councils for other industries to deal with problems of common interest.

3. To consider any differences which may be referred to them and cannot be settled within an individual undertaking, and, if necessary, to refer the same to the National Council.

4. It is competent for District Councils to consider and arrive at decisions upon any of the subjects above referred to. No decision which may affect other districts shall become operative until it has been confirmed by the National Council.

Questions at issue between the Companies and their Tramway employees, most of whom belong to the Transport and General Workers' Union, are either settled by direct negotiations or are referred to the District Council or National Joint Industrial

Council. On one occasion, in 1924, it became clear that the issues were so serious that it would be necessary for the National Joint Industrial Council to constitute special machinery to deal with them.

In the month of May 1924 the National Joint Industrial Council appointed a Special Committee "to enquire and report as to what steps, if any, may be taken to improve the existing machinery of the Council, with a special reference to the procedure to be followed in the event of a failure to arrive at a decision on any question." In an Interim Report the Special Committee recommended, among other matters, the constitution of a "Tribunal" to deal with matters referred to it by the National Council in respect to the revision or modification of any national agreement, and such other matters of national importance as the Council might from time to time decide. The Special Committee also recommended that the Tribunal should consist of ten members of the National Council, five to be elected by each side, with the addition of four persons who are not members of the National Council, two to be nominated by each side, together with a Chairman appointed by the National Council. The Special Committee's recommendations further dealt with matters affecting the procedure of the Tribunal.

This Interim Report was received by the National Council on 10 July 1924, and recommended by them to the constituent associations for adoption. The Report was adopted by the constituent associations and this was duly communicated to the National Council. The National Council was thereupon constituted a Tribunal for the Tramway Industry.

This Tribunal, after hearing both sides, issued on 1 November 1924 a unanimous decision and report on grouping, standardisation, increase in wages, stabilisation, and night work. Basic conditions continue to be regulated in accordance with this report.

In the case of the administrative clerical staff employed on the Tramways, an Agreement was made on 10 January 1924, between the Tramway Companies on the one hand and the Railway Clerks' Association on the other, for the establishment of an administrative clerical staff committee scheme for the discussion of questions relative to rates of pay, hours, conditions of work, conditions of service, and other matters affecting the staff. This scheme is generally similar to that which operates in the case of the head office administrative clerical staff.

Administrative Clerical Staff

The conditions of work of the administrative clerical staff employed at Headquarters are regulated in accordance with a series of collective agreements and other instruments, the basic agreement being that of 1920 between the Committee of Railway Managers and the National Union of Railwaymen and the Railway Clerks' Association.

Within the combine there is in existence an administrative clerical staff committee scheme for dealing with questions of wages, hours, conditions of service, and other matters affecting the staff. This scheme, which applies only to members of the male and female administrative clerical staff below the "special" class, was brought into operation by an Agreement of 11 August 1922 between the London General Omnibus Company and the Railway Clerks' Association. The functions and mechanism of this Committee are generally similar to those of the Sectional Committees under the Staff Council Scheme on the railways.

Half-Yearly Salaries Committee

Provision is made for the reviewing of salaries of the administrative (clerical and technical) grade twice a year — shortly before 1 January and 1 July—by the Managing Director, assisted by the Principal Officers of the Companies, i.e. the heads of the departments, sitting as a Committee called the "Salaries Committee". The object of dealing with the matter in this manner is to ensure uniformity of treatment throughout the departments, but the decision of the Managing Director in each case is final. The Principal Officers forward to the Staff Officer any proposals they have to make. The Staff Officer, who holds a central record of all members of the administrative staff, compiles data in respect of each case submitted, for the assistance of the Committee in considering the recommendations put forward.

The proposals may consist of recommendations for :

(1) *Promotion*, involving a passage from class to class.

(2) *Merit Increases.* These are special increases given in recognition of particularly good service. They are distinct from the normal increments given within the classes in accordance with the scales provided in the agreement.

(3) *Lump-Sum Bonuses.* These may be granted in certain exceptional cases where some special work has been done by an official in circumstances which would not come under category (2) above.

The total cost of the recommendations approved by the Managing Director at the Salaries Committee is submitted to the Chairman of the Companies for final confirmation.

The Salaries Committee's functions are confined to recommendations for promotion, etc., in *individual* cases. It does not deal with recommendations for increases in the *number of staff employed* by the respective departments, such recommendations being made direct to the Chairman's Meeting, which is a regular weekly meeting of the Principal Officers presided over by the Chairman of the Companies.

If a member of the administrative staff considers that his present responsibilities warrant a higher salary than he is receiving, he may make application to his Departmental Officer. If the Officer does not approve, or if he submits a recommendation which is not approved by the Managing Director at the meeting of the Salaries Committee, the employee in question has the right to appeal to a Committee called the "Salaries Appeals Committee", which consists of the Managing Director, supported by two of the Principal Officers not directly concerned in the appeal. The appellant may, if he so desires, be represented at the meeting of the Appeals Committee at which his appeal is to be heard, by an advocate, who may be either a fellow employee or a representative of a trade union. The Officer under whom the appellant is employed is also present when the case is heard.

The Appeals Committee usually sits about one month after the meeting of the Salaries Committee, in order that there may be no undue delay in dealing with any appeals which may arise after the decisions of the Salaries Committee are made known.

Suggestions Scheme

It is convenient, at this point, as a further instance of collaboration between the Management and the workers, to consider the Suggestions Scheme. The Companies have in operation a Suggestions Scheme whereby any member of the staff may submit suggestions for improvements of any kind in regard to

either the running of the railways, omnibuses, or tramways, or the plant and equipment used.

Suggestions are invited from employees in regard to such subjects as :

Methods of increasing traffic and the provision of better traffic facilities ;

Improved methods of working trains, omnibuses, and trams ;

Improvements in rolling stock and equipment ;

Improvements in connection with works, garages, depots, stations, lifts and escalators, etc.;

Improved methods of lighting, heating, ventilation, signalling, etc.

Suggestions submitted for consideration under this scheme must contain something original and show evidence of having been carefully thought out. Merely to call attention to an omission or error or to propose the extension of some existing practice, is insufficient, unless the matter is of some exceptional importance.

Forms on which suggestions must be submitted (and envelopes for despatching them to 55 Broadway) can be obtained at every local office.

The form is so arranged that the upper portion, giving the name, occupation, and other particulars of the suggester will be detached in the Suggestions Bureau prior to forwarding the suggestion to the departments concerned for report. The anonymity of those putting forward suggestions is thus preserved whilst the proposals are under consideration.

The Suggestions Scheme in its present form has been in operation since 1917. Since its inauguration, 52,856 suggestions have been received. During 1929, 3,632 suggestions were submitted, of which 153 were wholly adopted and monetary awards granted.

There were 111 other cases in which awards were made either for suggestions leading to some definite action being taken or considered of sufficient merit to justify recognition.

The usual award made for adopted suggestions (the majority of which relate mainly to detail and assist to keep a standard of accuracy and care) is £1. Higher amounts have, however, not infrequently been paid. In one case an award of £25 was made

to an assistant craftsman at one of the Companies' works for an improvement in connection with the working of valve-grinding machines. A list of awards is published monthly in the Traffic Circulars and posted on the notice boards. Particulars of the awards are also entered on the employees' staff records.

It is of interest to note that it has been ascertained that a much larger proportion of suggestions is received during the winter months than in summer. The obvious deduction is that the men occupy some of their leisure during the winter months in thinking out suggestions for improvements.

General Principles of Industrial Relations

It is clear from the account that has been given that the machinery for discussion between Management and workers assumes a wide variety of forms. Can any underlying principles be discerned ? Is there any unity in all the diversity of application ? In our opinion, the policy of the Combine in its relation with its workers is inspired by a unity of purpose which considers that consistency is important but symmetry is not. The general aim has been to provide everywhere for machinery to facilitate relations between Management and workers. The precise form of the machinery adopted necessarily varies, however, in accordance with circumstances.

The general principles of industrial relations in the Combine, it may be suggested, are the following :

(1) Basic conditions of work are regulated in accordance with collective agreements. In all cases the Combine has been associated with other undertakings engaged in passenger transport in the negotiations with the trade unions which led to these collective agreements.

(2) The Combine remains in direct contact with the trade unions concerned, and makes direct settlements with them on matters which concern its employees.

(3) In conjunction with the trade unions concerned the Combine has set up a wide variety of schemes to facilitate industrial relations within the Combine.

(4) Negotiations between the Combine and the trade unions and between Management and workers cover wages, hours, and

conditions of service. They expressly exclude questions of management and discipline.[1]

(5) Nothing in the various schemes is to be taken to cancel the regular channels by which employees communicate with the officials and officers on matters which concern them, it being understood that every employee shall, in the first instance, address his case to the official immediately over him, or through him to the official or officer authorised to deal with it. It is a general principle that all disputes shall be dealt with in the first place locally and as rapidly as possible.

Wages, Hours, and General Conditions of Service

The main conditions of service of wage grades employed by the London General Omnibus Company, the Underground Railway Companies, and the Tramway Companies are detailed in the table on pages 126 to 129. Conditions or service of similar grades employed by the Main Line Railways, in accordance with the Agreement with the National Union of Railwaymen dated 9 April 1929, are given for purposes of comparison.

It is to be noted that the standard rates of wages indicated in the chart are in fact considerably exceeded by the average earnings of the men. The table on page 130 shows for selected categories the standard rates and average earnings for a week.

The administrative clerical staff is classified in eight grades, the denomination and remuneration of which are as follows :

Grade	Salary
Junior (15 – 17 years of age)	£45 – £65
Class 5 (age scale from 18 to 31)	£90 – £210
,, 4 [1]	£220 – £240
,, 3 [1]	£250 – £270
,, 2 [1]	£280 – £310
,, 1 [1]	£330 – £360
Special	£380 – £600
Assistant	£650 – £900

[1] Biennial increments of £10 per annum.

[1] Questions of discipline are dealt with by disciplinary boards representing exclusively the Management. A man brought before a disciplinary board is, however, permitted to have the assistance, in presenting his case, of a representative of his trade union.

COMPARISON OF RATES OF PAY AND MAIN CONDITIONS OF SERVICE OF SELECTED GRADES EMPLOYED BY THE MAIN LINE RAILWAYS AND THE LONDON TRAFFIC COMBINE

Condition	Main Line Railways	L.G.O.C.	Underground Railways	M.E.T., S.M.E.T., and L.U.T.
	Motor Bus Drivers and Conductors (London Area)	Drivers and Conductors	Motormen, Guards, and Gatemen	Motormen and Conductors
Rates of pay (per week)	Motor bus drivers (public) 64s.* Motor bus conductors 58s. These rates are subject to the 2½ per cent. reduction at present applicable to Main Line Railways. * The agreement provides also for leading motor bus drivers Class 1 (74s.) and Class 2 (68s.) for men who are responsible for the supervision of motor drivers at a small depot, including running repairs, stores, and discipline. Class 1 : where weekly depot mileage is above 1,000 per week. Class 2 : where weekly depot mileage is 1,000 or below per week.	Drivers : Minimum 80s. 6d. Maximum 86s. 6d. Conductors : Minimum 73s. 6d. Maximum 79s. 6d. (Maximum rate after 6 months.)	Motormen : Minimum 75s.* Maximum 93s.* Guards : Minimum 53s.* Maximum 68s.* Gatemen : 50s. * Including special wage allowance of 3s. per week. (Maximum rate after 6 years.)	Basic rate / War wage / Total Motormen : Min. 39s. 25s. 64s. Max. 48s. 25s. 73s. Conductors : Min. 39s. 25s. 64s. Max. 48s. 25s. 73s. (Maximum rate after 2 years.)
Normal working week	48 hours, usually consisting of 6 turns of duty rostered as the Company may require. Where necessary, the 48 hours may be worked in less than 6 turns, provided the duration of each turn inclusive of meal intervals does not exceed 12 hours. Each rostered turn of duty to carry not less than 8 hours' pay at the standard rate.	48 hours, consisting of 6 scheduled duties each carrying not less than 8 hours' pay at the standard rate.	48 hours, consisting of 6 scheduled weekday duties each carrying not less than 8 hours' pay at the standard rate.	48 hours, consisting of 6 scheduled duties each carrying not less than 8 hours' pay at the standard rate.

Spreadover and hours of duty	Spreadover turns of duty to be worked as and when required, subject to maximum spreadover of 12 hours for any one turn of duty as mentioned above.	Weekdays : 75 per cent. of the scheduled duties not to exceed 8½ hours' work in 9 hours : 15 per cent. not to exceed 9 hours' work in 10 hours ; 10 per cent. not to exceed 9 hours' work in 12 hours. Sundays and Bank holidays : 80 per cent. of the duties not to exceed 8½ hours' work in 9 hours ; 20 per cent. not to exceed 9 hours' work in 10 hours. N.B. On all duties where spreadover exceeds 10 hours, an allowance of 1s. 6d. is paid. (The above are calculated on a route basis —two routes from one garage treated as one.)	Drivers and guards : 90 per cent. of the whole of the duties are straight turns of 8 hours, which include a meal relief of 30 minutes. 35 per cent. of these duties on a line basis may work 30 minutes additional and a further 5 per cent. may work 45 minutes additional, such addition being paid for at the rate of time-and-a-quarter. 10 per cent. of the whole of the duties are spreadover or split turns, which may extend to 12 hours, with a maximum of 7½ hours' actual work. Gatemen : 40 per cent. of the whole of the duties are straight turns of 8 hours, including meal relief. 35 per cent. of these duties on a line basis may work 30 minutes additional and a further 5 per cent. may work 45 minutes additional, such addition being paid for at the rate of time-and-a-quarter. 60 per cent. of the whole of the duties on a line basis may extend to 12 hours, with a maximum of 7½ hours' actual work.	The average duty schedules consist of 48 hours per week of 6 days. No schedule of weekly duty shall be less than 44 hours nor more than 52 hours. No schedule of daily duty shall be less than 6 hours or more than 10 hours. There is no limit to spreadover but Companies incur a penalty of half an hour's pay at ordinary rate for spreads exceeding 12 hours up to 13 hours, and 1 hour's pay at ordinary rate for spreads exceeding 13 hours up to 14 hours. No spreads exceed 14 hours.

COMPARISON OF RATES OF PAY AND MAIN CONDITIONS OF SERVICE OF SELECTED GRADES EMPLOYED BY THE MAIN LINE RAILWAYS AND THE LONDON TRAFFIC COMBINE *(continued)*

Condition	Main Line Railways	L.G.O.C.	Underground Railways	M.E.T., S.M.E.T., and L.U.T.
	Motor Bus Drivers and Conductors (London Area)	Drivers and Conductors	Motormen, Guards, and Gatemen	Motormen and Conductors
Meal reliefs	One or two meal intervals to be taken at reasonable times convenient to the service in each rostered turn of duty.	Duties with spreadover not exceeding 9 hours. minimum 20 minutes. maximum 30 minutes. If over 30 minutes, the excess to be counted as time worked and paid for. Duties with spreadover exceeding 9 hours but not exceeding 10 hours. minimum 40 minutes. maximum 60 minutes. If over 60 minutes, the excess to be counted as time worked and paid for.	30 minutes' meal relief to commence between the third and fifth hours of duty but need not necessarily finish between these hours. If, through any emergency, the relief does not commence within 5 hours, an extra half-an-hour's pay at flat rate to be allowed, and, if desired, 30 minutes' relief must be given as soon as possible.	Where men are employed on long spreadovers, endeavour is made to give relief about the middle of the turn of duty. On Sundays men are relieved between the hours of 1 and 3 p.m. unless the turn of duty finishes prior to or between these hours.
Rosters of duties	No special provision.	Duties rostered as early, middle, and late shifts. Early shifts finish not later than 6 p.m. on weekdays and 7 p.m. on Sundays. (75 per cent. of the spreadover duties exceeding 10 hours finish by 9 p.m. except Saturdays.) Early shifts shall comprise at least 35 per cent. of the scheduled duties on any day. Middle shifts not to comprise more than 10 per cent. of the scheduled duties on any day.	Duties are rostered as early and late according to the requirements of the service. There is no restriction as to the proportion of early, middle, and/or late shifts.	Duties are rostered as early, middle, and late according to the requirements of the service. There is no restriction as to the proportion of early, middle, and/or late shifts.

Rest period	Rosters to provide a period of not less than 9 hours' rest from the time of signing off to signing on for the next turn of duty.	A scheduled duty shall not commence within 12 hours of the termination of the previous scheduled duty, except for spare men or on a change of shift, in which event the interval shall not be less than 8 hours.	In all regular duties a period of 12 hours' rest.	Period of rest between duties : 9 hours.
Special rates of pay :				
Sunday duty	Time-and-a-half.	Time-and-a-quarter.	Time-and-a-half.	Time-and-a-quarter.
Christmas Day		Double time.	8 hours *plus* half time actually worked at flat rate.	Double time.
Good Friday		Time-and-a-quarter.		Time-and-a-quarter.
			N. B. When Christmas Day falls on Sunday payment is made at the rate of time-and-a-half for all time worked.	
Bank holiday	Ordinary rate.	Time-and-a-half.	Ordinary rate.	Time-and-a-quarter.
Night duty	No special provision.	Time-and-a-quarter.	Time - and - a - quarter (between 10 p.m. and 4 a.m.).	No night duty.
Overtime payment	Time-and-a-quarter.	First 2 hours time-and-a-quarter, afterwards time-and-a-half.	Time - and - a - quarter, or if between the hours of 10 p.m. and 4 a.m. time-and-a-half.	First 2 hours time-and-a-quarter, afterwards time-and-a-half.
Annual leave with pay	6 weekdays after 12 months' service.	8 days after 12 months' service.	6 weekdays after 12 months' service.	8 days after 12 months' service.

RATES OF PAY AND AVERAGE EARNINGS OF SELECTED GRADES EMPLOYED BY THE LONDON TRAFFIC COMBINE

Company or group	Grade	Standard rate per week (48 hours)			Average earnings per week
		Minimum	Flat	Maximum	
		s. d.	s. d.	s. d.	s. d.
Underground Railways	Motormen	75 0	—	93 0	103 4
	Guards	53 0	—	68 0	78 6
	Gatemen	—	50 0	—	55 5
	Porters	42 0	—	48 0	57 10
	Booking clerks	35 0	—	80 9	73 4
L.G.O.C.	Drivers	80 6	—	86 6	92 2
	Conductors	73 6	—	79 6	84 4
	Inspectors, 2nd class	76 0	—	86 0	89 3
	General hands (garages)	65 7	—	67 7	76 0
Tramways	Motormen	64 0	—	73 0	75 7
	Conductors	64 0	—	73 0	75 7
	Permanent-way labourers	—	66 3	—	67 9
	Greasers (depots)	67 0	—	68 7	70 1

Overtime rates vary from 9d. per hour for juniors to 3s. 6d. per hour for class 1. Sunday duty is paid at rates varying from 1s. per hour for juniors to 4s. per hour for class 1.

Overtime and Sunday rates are not paid to men in the special and assistants' grades.

Hours of work are 38 per week for head office staff and 48 per week for booking office staff.

Annual leave with pay is granted at the rate of 12 weekdays for grades junior to class 3 inclusive, 15 weekdays for grades 1 and 2, 18 weekdays for the special grade, and 20 weekdays for assistants.

Full details with regard to the rates of pay and conditions of service of all grades of staff have been compiled and printed for the use of officials of the Companies. This document is obviously so useful that it may be of interest to describe it. Its format is that of a loose-leaf album of large quarto size. The loose-leaf system is adopted in order to render revision simple on a change of conditions of service. The document contains at present 138 pages. It is divided into three sections, relating respectively to railways, omnibuses, and tramways. Different colours of paper are used for each section, in order to facilitate reference.

The document gives not only full details with regard to wages, overtime, hours, etc., but also contains, carefully classified, the texts of the various collective agreements, decisions of wages boards, circular letters, memoranda of interpretation, decisions of councils and committees, etc., on which these conditions are based.

It is of interest to note that the total wages bills of the Companies represent 60 per cent. of their total operating expenditure.

The improvement in the position of the workers between the years 1924 and 1929 has been indicated as follows :

In 1924 the Underground Group of Companies employed 41,700 people and paid them an average wage of £3 17s. 9d. a week. They, in turn, provided 227 millions of car-miles—either train, tram or bus—for the public services.

In 1929 the same Group of Companies employed 44,549 people and paid them an average wage of £4 3s. 7d. a week. They, in turn, provided 281 millions of car-miles—either train, tram or bus—for the public service.

Between 1924 and 1929 the cost of living steadily fell from 180 points to 167 points, or by 7 per cent. The average wages paid went up in the same period by 7.5 per cent. The real monetary gain to the employee was, therefore, over 14 per cent.

This improvement in the material situation of the employees was rendered possible by the increasing efficiency of the operation of the Companies.

The principles for which rationalisation stands are constantly being applied in the Combine. In the first place, its whole history has been one of amalgamation, consolidation, and co-ordination, with a view to the elimination of waste and the avoidance of duplication. In the second place, every possible mechanical improvement is progressively introduced.

One or two instances of this may be given. The new buses now being put on the road comprise four-wheeled and six-wheeled omnibuses with six cylinders, having seating capacities of 49 and 60 seats respectively, instead of 34 in the case of the " B " type of 1910/1913, 46 in the case of the " K " type of 1919, and 50 in the case of the " NS " type of 1923. Again, mechanical improvements have been made in the rolling-stock of the Underground Railways in connection with the automatic opening and closing of doors, and in others ways. Finally, additions are being made to the installation of escalators, working automatically, which take the place of the lifts.

As a result of the application of these methods of rationalisation, a considerable increase has taken place in the number of

car-miles run per man employed. In 1924 the Companies were able to supply 5,400 car-miles per man employed per annum ; in 1929 6,300 car-miles per man employed per annum, a gain of 16 per cent. and a measure of increased efficiency. In order to secure it about £6,000,000 was spent on new equipment and improvements.

There is, however, no discharge of regular staff on account of the improvements and more economical methods of working which are put into operation from time to time, as it is the policy of the Companies to retain any men who may thereby become redundant until such time as they can be absorbed by natural wastage or in the newly created services which result from the constant extension and development of the Undertakings. It is found in practice that this policy assists very considerably in securing the support of the staff for the introduction of labour-saving machinery and other improvements.

In a number of cases the Companies pay rates which are considerably above the current London District rates for the grades concerned. For example, craftsmen and other grades of labour employed in the Engineering Shops — where piece work is not in vogue — work under an output bonus scheme which assures them considerable additions to the normal weekly rates applicable to their grades. Moreover, a policy is being pursued of raising the rates of the lower grades of employees engaged upon unskilled work with a view to ensuring that their minimum weekly earnings shall not be less than 60s.

Employment Procedure

The Staff Officer is responsible for co-ordinating matters of principle affecting more than one department. Recruiting of administrative clerical staff is also the responsibility of this Officer.

Recruiting of administrative technical staff and of non-administrative staff in the various departments is the responsibility of the particular Officer concerned.

Applicants for employment in the non-administrative grades are individual and are dealt with at employment centres in various parts of London.

All units of the Combine use a uniform employee record card of the visible index type measuring approximately 5 × 8 inches.

This employee record card contains the employee's name with brief general statistics and a complete record of salary changes and remuneration during the full period of service. Employee record cards for the administrative staff are centralised in the office of the Staff Officer. Corresponding records for the non-administrative staff on the railways and in the Omnibus Company are centralised in the head office of the Combine under the respective staff clerks. So far as employee records are concerned the principle of decentralisation is applied by the inclusion of the application, reference, medical examination, and appointment forms and all subsequent correspondence or papers in a single file which accompanies the employee as he is transferred from one department, office, or section to another. For purposes of co-ordination and control of changes in staff, a monthly statement giving particulars of new appointments, dismissals, resignations, transfers, and other changes is prepared by the audit officer for the administrative staff and by each officer concerned for the non-administrative staffs and reviewed by the Staff Officer.

The Companies of the Combine have not been faced with any difficulty in regard to recruitment, there having been at all times a surplus of applicants, applications for employment having reached a figure of 45,000 in one year. Responsibility for hiring rests with the officers in charge of local units.

At the time of employment every employee is given a copy of the rules and regulations affecting him and a brief explanation of the Companies' industrial relations policies. Local principal officers are also given the authority to make dismissals, all of which are finally reviewed by the Staff Officer.

The policy of promotion from within is maintained as far as practicable. As vacancies occur in all except the lower classes of the administrative staff, they are advertised within the Companies through the medium of a circular letter over the signature of the Staff Officer. The most rigid standard of selection is maintained throughout the Combine as regards physical fitness. Every applicant is required to submit to a medical examination made by a physician selected by the Company. The Company maintains the right to require a re-examination at any time. All members of the wages staff are re-examined on the occasion of every promotion. An indication of the stability of employment in the Combine is given by the following figures of the wastage of non-administrative staff for the year 1929.

WASTAGE OF NON-ADMINISTRATIVE STAFF IN THE COMBINE IN 1929

Cause of wastage	Railways		L.G.O.C.		Tramways		Total	
	Number	Per cent.	Number	Per cent.	Number	Per cent.	Number	Per cent.
Disciplinary action	42	0.4	220	0.7	19	0.53	281	0.6
Death	54	0.5	112	0.3	24	0.67	190	0.4
Discharge [1]	579	5.9	146	0.5	37	1.03	762	1.8
Resignation	239	2.4	377	1.3	49	1.36	665	1.5
Retirement : Age limit	41	0.4	85	0.3	35	0.97	161	0.3
Ill-health	11	0.1	17	0.05	14	0.39	42	0.1
Total	966	10.0	957	3.3	178	4.95	2,101	5.3

[1] Mainly due to discharge of temporary holiday staff at end of season.

Training and Education

As a means of developing new material for the later acceptance of supervisory and executive responsibility, the Combine experimented several years ago with a system of "cadet" training. According to the provisions of this system, a limited number of young men from school and college were employed for a series of brief periods in various departments of the Combine. This system was abandoned, as it proved to be unsatisfactory to the principal officers of the units to which the men were periodically assigned and failed to produce the desired results. Considerable care is exercised in the selection of juniors, special consideration being given to the possibilities of their development in the service of the Companies.

In addition to this interest in the development of future supervisory and executive staff, the Combine maintains a training school for the operating department of the railways and a training school of the Omnibus Company for the training of conductors, drivers, and inspectors. The cost of training and equipping a driver or conductor for the Omnibus is £25, and in the Railway Companies the cost varies from £8 for porters to approximately £15 for motormen.

Railway Training School

The training school for the underground railways deals with the engagement and training of staff for the operation department and the education of staff with a view to promotion.

The preliminary grades are junior booking clerks (minimum age 16) and station porters (minimum age 23). Candidates for these positions have to pass a medical and eyesight test, after which they are placed on probation for six days, and receive instruction in their duties before actual appointment.

During the winter months classes are held for instruction dealing with both the theoretical and practical side of the duties of all grades. These classes are quite voluntary and open to all members of the operating staff, the object being to give every assistance to the men to become proficient in the grades to which they may be promoted.

The session is divided into two terms, an examination being held at the end of each term, i.e. December and March, and certificates issued to successful candidates.

A synopsis of these lectures is given below.

Gateman's and Guard's Duties. Train equipment, signals and signal failures; instruction *re* wrong line and single line working; train and current failures; etc.

Station Masters (Clerical Side), Passenger Agent's Duties. Equipment of booking offices; issue of ordinary and season tickets; accompanied merchandise and cloakroom revenue books; proofbooks and abstracts; etc.

Station Masters, Station Inspector's and Station Foreman's Duties (Traffic Side). Control and supervision of stations; signal and signalling rules; trains stopped by accident; wrong line and single line working; cutting off current in emergency; isolating switches; etc.

Motorman's Duties. Westinghouse brake; description of control equipment; preparation of trains for service; dealing with failures; etc.

Ticket Inspector's, Ticket Collector's and Liftman's Ticket Collecting Duties. Charging of excess fares; some methods in detection of fraudulent travelling; etc.

Signalman's Duties. Manual and semi-automatic signal cabins; signals and signalling rules; regulation train services; etc.

Liftman's Duties. Operation of lifts and escalators; method of dealing with failures; safety devices and hand winding of lifts; etc.

Candidates for promotion to higher grades are re-examined and, if fit, are required to pass the standard examination in theoretical and practical knowledge of the duties of the grade

concerned ; in the case of certain grades, such as guards and motormen, actual training on the line by competent instructors is given prior to taking the examination.

Omnibus Training School

The training school of the Omnibus Company deals with the engagement and training of drivers, conductors, and inspectors and the education of staff with a view to promotion.

Drivers. The Company does not accept new drivers for employment under 28 years of age or over 35, and the minimum height measurement is 5 ft. 7 ins. The medical examination is strict, particularly in regard to sight and hearing, and men who find it necessary to use spectacles are not accepted. The services of the most capable and experienced drivers in the employ of the Company are utilised as instructors, and these, with special learners' buses, are attached to the training school.

After men have been accepted for tuition, they are put through the first stages of their training at the training school, where, contemporaneously with lectures, practical lessons are given in gear changing and general control of the vehicle. Driving instruction is first given on the school premises, and subsequently in quiet neighbourhoods, where there is little or no traffic. Subject to satisfactory progress, learners are then taken into streets carrying heavier traffic. After being finally tested by one of the chief instructors, they submit to the Scotland Yard Police test, which includes an examination in a short-arm reverse and actual driving through the busiest West End thoroughfares. The average time taken to train a fully competent driver is 28 days.

Conductors. Conductors are not employed under 24 years of age, and must not be less than 5 ft. 6 ins. or more than 5 ft. 11 ins. in height. The conductors' course of training is both varied and complex, consisting of much detail, some part of which is strictly technical, dealing with matters such as schedules and time-tables, appertaining to their daily work. Methods of issue, punching and accounting for tickets sold : this necessitates accurate and quick calculation and here many fail to reach the standard desired by the Company and are not permitted to pass from the school as conductors. Approximately one in every sixteen accepted applicants fails to pass the tests and examinations given at the school. Other than ordinary bus tickets have to be discussed and under-

stood — through-booking from bus to rail, exchange, children's etc., are only some of those that are dealt with. Police regulations and the " Metropolitan Stage Carriage Act " proving the privileges of passengers and the limitations of conductors whilst on service are thoroughly gone into. Such subsidiary matters as " lost property ", " carriage of dogs ", " luggage ", " pickpockets ", and undesirable passengers, each take their turn in the syllabus, which is given in a series of lectures that are held in the classrooms.

A special lecture is given on " accidents ", when both drivers and conductors are present. This is held in the classrooms cinema, when pictures are displayed of accidents which have occurred, and lessons expounded showing how each accident might have been avoided. The principle of " Safety First " is urged, and unison between drivers and conductors to acquire the habit of the safety and comfort of the passengers. One half-day is devoted to the " accident " lecture alone.

Conductors are taken on a " private " bus under the guidance of an experienced inspector, when traffic conditions are explained to them, bell and hand signals are demonstrated to them, and the art of standing on a moving vehicle without support whilst in the act of punching tickets. They, too, must be observant of the route taken, as they are questioned on their return as to what streets and buildings they passed — this, to impress the importance of the " Knowledge of London "

An examination paper is put before them near the end of their training. Learners, as a result of their replies, may attend further classes, or by their own request attend lectures a second time ; every facility is offered to the man who tries.

Having passed all tests and examination, and being in possession of his licence, he is then fitted out with uniform and sent to Chief Office to be allocated to a garage. After a short practice on a service bus with an experienced conductor he then commences duty on his own. The average time taken to train a conductor is 14 days.

Learners, both drivers and conductors, receive a food allowance of 4s. per day whilst under tuition, this being for a maximum period of 32 days for drivers and 14 days for conductors.

Inspectors. Inspectors are promoted from the ranks of the drivers and conductors. First, the qualifications of an inspector as desired by the Company are explained to them. They consist of their duties to the passenger, to the Company, and to the men.

The importance of personal appearance and habits is impressed upon them. Official organisation and divisional operations, together with their connection with the Traffic Controller, are carefully explained. Other subjects dealt with include their duties in dealing with traffic emergencies due to outbreak of fire, accident, presence of Royalty, etc., which may cause stoppage or diversion of traffic ; public complaints, dereliction of duty on the part of the staff, confidence, and the necessity for tact and discretion in dealing with all work before them ; reports, their meaning, truth, subject, dispatch, and possible results ; terminal ticket inspection, regulating and special duties ; queue forming and headways of buses. Two days are spent under the supervision of an inspector at a busy terminus, where the new inspector gets tuition under service conditions, finally returning to the school to answer an examination paper. The period of training is one week.

Cookery School

To meet the requirements of their extensive catering service for the various messrooms that are maintained by the Company a cookery school has been established, where the cooks for the various messrooms are trained under expert supervision before assignment.

Accident Prevention

Responsibility for accident prevention rests with the principal officers of local units. One means of co-ordinating the efforts of the local units is by the use of the bulletins and literature issued by the National Safety First Association, which was organised in 1918 and has its headquarters in London.

The Omnibus Company's Scheme

The drivers and conductors of the Omnibus Company compete for medals which are given each year by this Association for periods of service completed without serious accident. Eight men of the Omnibus Company have received a gold medal for ten years of service without serious accident, and 939 men have received silver medals for five years of service without serious accident. In addition to this incentive the Omnibus Company

grants an accident bonus to its drivers and conductors according to the following provisions.

A daily bonus of 1d. per working day is paid to drivers free from accidents for which they are held to be to blame. This bonus is paid quarterly, but any employee leaving the service during the quarter is credited with any daily bonus payments he has earned.

In addition a quarterly bonus is paid to drivers in the service at the end of each quarter who have been employed as such during the whole or part of each of the previous two quarters; the conditions to be complied with and the amount of the bonus are shown in the following table:

CONDITIONS AND AMOUNT OF QUARTERLY BONUS FOR FREEDOM FROM ACCIDENTS

Days worked by driver in the quarter	Number of accidents for which driver is to blame		
	None	Only one	Only two
	s. d.	s. d.	s. d.
52-64	10 0	7 7	2 6
65-77	12 6	10 0	5 0
78 and over	15 0	12 6	7 6

Conductors receive a bonus of 1d. for each day they work free from accidents for which they are held to be to blame. This is paid weekly, each week being a full period of seven days.

The total sum paid as accident bonuses in 1929 amounted to approximately £48,000.

A rather novel scheme used by the Omnibus Company to stimulate interest in the reduction of accidents is a large bulletin board placed in each of the garages and made up in the form of a target. There is competition among the many buses in the three divisions of the Company to score a bull's-eye based upon an arbitrary score of accidents per month per 10,000 car-miles

Organisation in the Railway Companies

In the mechanical engineering department of the Railway Companies the accident prevention organisation has been developed as follows:

1. The Local Committees at each of the works of this department each appoint one of their number to be a representative of a Safety Committee to deal with the prevention of accidents to employees. The Company appoints a representative to be a member of the Committee.

2. Arrangements are made to supply the Committee with particulars of all accidents for consideration in the matter of prevention, and all suggestions made by employees with this object in view are referred to the Committee for recommendation.

Recommendations and suggestions are forwarded to the Chief Mechanical Engineer for approval.

3. The Committee brings up any cases of breaches of Safety Rules coming to notice, and makes recommendations as to future avoidance.

The Central Committee meets periodically—not less than once a year—for the purpose of securing uniformity of action and standardisation.

First-Aid Facilities and Training

Shops, Depots, and Power House (Railways). First-aid boxes are supplied in accordance with the requirements of the Factories Act, and qualified first-aid men are recruited from amongst the members of the staff of the various sections, who receive a bonus in recognition of their services.

Permanent Way Staff. Each gang is supplied with a first-aid box, and in the case of extra gangs large outfits are carried on the train in case of serious accidents.

Stations. Each station is supplied with a first-aid box and a stretcher.

Overhaul Works (L.G.O.C.). There is in existence a first-aid station, which is staffed by 1 qualified nursing sister, 1 qualified St. John's Ambulance nurse, and 2 qualified volunteer first-aid men ; in addition there are three stretcher squads, each consisting of 7 qualified first-aid men, who cover various sections of the works, and are detailed for duty in cases of serious accidents happening in the works. In the absence of the first-aid sister, or if the station is closed, the firemen, all of whom are qualified first-aid men, take charge of any case, the fire station being used as an emergency ambulance room.

Garages. The usual first-aid equipment is kept at all garages. To ensure that there is always a qualified first-aid man present, all garage wardens, who work on rotating shifts, are required to hold first-aid certificates as a condition of employment ; these certificates must be renewed every two years.

Head Offices. A room is set apart for the use of female staff. This is in charge of a qualified first-aid member of the female staff. So far as the other members of the staff are concerned, volunteers are asked for from amongst the staff to render any assistance which may be necessary.

Training. First-aid training classes are held during the winter months at various centres on the Companies' premises under the auspices of the St. John's Ambulance Brigade. Members of the staff are invited to attend the courses, either for the purpose of obtaining first-aid certificates, or for re-examination. A record is kept in the various departments of successful candidates, and consideration is given to these as and when vacancies occur for appointment to the various first-aid posts. All the cost of these classes is borne by the Companies.

Insurance, Workmen's Compensation, Pensions, and Friendly Benefits

In the field of insurance, workmen's compensation, and friendly benefits a wide variety of systems is in operation. These systems may be classified in four groups : (*a*) statutory systems ; (*b*) non-statutory systems administered by the Companies ; (*c*) voluntary systems administered by the Companies and their staffs jointly ; (*d*) voluntary systems administered by the staff.

Statutory Systems

The Companies are liable, in accordance with various Acts, to make provision for their employees in the following fields :

(1) *National Health Insurance.* Under the National Health Insurance Acts contributions are made by employers and employees as follows. The Company pays 9d. per week for all men employed and 7d. per week for all women employed, male employees contributing 9d. per week and women employees 6d. per week.

(2) *Unemployment Insurance.* In accordance with the Unemployment Insurance Acts contributions are made by the Companies and the employees as follows. The Company pays 8d. per week in the case of male employees and 7d. per week in the case of women employees, male employees contributing 7d. per week and women employees 6d. per week.

(3) *Workmen's Compensation.* Under the Workmen's Compensation Acts the Companies are liable for workmen's compensation for accidents, in accordance with the provisions of the Act. No contribution is made from the staff.

(4) *Superannuation.* Under the Railway Clearing System Staff Superannuation Fund, the Company has certain liabilities for a small number of its salaried railway staff. In the case of present employees the Company contributes an equal amount to that subscribed by the members, but the responsibility of the Company under various Acts involves additional payments in respect of certain of the superannuated staff.

The scale of contributions varies from 2½ per cent. of salary at 20 years of age on entry to 6 per cent. at 45 years of age in the case of those employees who entered the Fund prior to 1 July 1913, the rate for new entrants on and after that date being 3 per cent. at 20 years of age to 6½ per cent. at 45 years.

The Company pays an amount equal to the member's contribution, but under various Acts is responsible in addition for payment of the pension and the full contribution after the member retires, so far as old members of the Fund are concerned, viz. those who joined prior to 1 July 1913.

Any employee may retire at 60 years of age, and all employees must retire at 65 years of age. The general pension provided on retirement, for employees who entered the Fund after 1 December 1904, is based on a percentage of average salary during total years of membership — varying from 25 per cent. of salary for a membership of 10 years to 85 per cent. for a membership of 51 years and upwards, with a minimum pension of £30 per annum. In the case of those members who entered the Fund prior to 1 December 1904, the pension is based on two-thirds of the average salary during the last seven years of membership.

Non-Statutory Systems Administered by the Companies

(1) *Superannuation Fund.* The Companies have in operation a contributory staff Superannuation Fund, which all male members of the permanent administrative staff, other than those in the Railway Clearing System Fund above referred to, are required to join. This fund is called the Omnibus, Railway and Equipment Companies Staff Superannuation Fund. The Companies contribute a like amount annually to that paid by the

employee. The scale of contribution of employees is determined in accordance with the age at which they enter the Fund. Employees entering under 21 pay annually 3 per cent. of salary. The percentage increases in accordance with the age at which members of the Fund enter the Fund, and in the case of members entering the Fund at the age of 42 the percentage of salary is 6 per cent. In the case of members of the Fund entering at an age exceeding 42, the percentage is determined by the actuary.

Any employee may retire at 60 years of age, and all employees must retire not later than 65 years of age. The annual pension provided on retirement is 2 per cent. of the aggregate amount upon which contributions have been made by the employee during the whole of his period of membership of the Fund. The minimum pension granted is £60 per annum. The management and direction of the Fund, including the determination of all claims made upon it, is vested in the Managing Committee, which consists of 7 persons, including the Chairman of the Fund, of whom 3 represent the members and 4 represent the Companies.

(2) *Pensions to Supervisory Staff.* The Companies pay certain pensions to the supervisory staff. According to this scheme, an employee with not less than 10 years' continuous service who having attained the age of 65 years retires from the service is qualified for a pension, and an employee with not less than 10 years' continuous service who is required to retire owing to incapacitation, not being the result of his own misconduct or negligence, may be granted a pension in the entire discretion of the Companies. Prior to 31 July 1929 the scale of pensions was as follows :

Years of continuous service worked in both wages and/or supervisory grades	Per week
Over 40	20s.
,, 35 and up to 40	15s.
,, 25 ,, 35	12s.
,, 15 ,, 25	10s.

As from 31 July 1929 a revised scale was put into operation under which retirement pensions are based on 1 per cent. per annum of the aggregate salary or wage of the employee during the whole period of service, with a minimum scale pension of £30 per annum.

In the event of the pension payable under the new scale amounting to less than would have been payable under the old " years of service " scale, the old scale will be applied.

Consequent upon the operation of the Widows', Orphans' and Old-Age Contributory Pensions Act, pensions payable under this scheme are subject to a reduction of 5s. per week, in the case of compulsorily insured staff retired at 65 years of age (or if retired before reaching that age, upon reaching 65 years of age) until the pensioners reach 70 years of age, when the existing scale of pensions will apply.

It should be noted that this system does not involve any contribution on the part of the employees.

(3) *Ex gratia Pensions and Grants.* *Ex gratia* pensions and grants are paid to wages grades on retirement. The amount paid varies according to service from a grant of three months' pay to a pension of 16s. per week. In determining years of service all Companies in the group are treated as one, and service with any Company which was formerly associated with the group and has now been liquidated also counts for pensions and grants.

Voluntary Schemes Jointly Administered

The only scheme in this category is the T.O.T. Benevolent Fund. Under this Fund any member of the staff may subscribe 1d. per week. The Companies undertake to subscribe 1d. per week for each member.

The purpose of the Fund is to assist the members of the Fund in time of difficulty or distress. The report of the Fund for 1929 shows that the membership for the end of the year was 39,800, an increase of 1,300 over the figure shown for the previous year. The members now represent about 90 per cent. of the staff of the Companies.

During 1929 local committees dealt with 2,159 applications for assistance and the Central Relief Committee considered 662 cases. The total grants made amounted to over £9,740. During the year 199 applications for legal and housing advice were received. Great use continued to be made of the convalescent facilities provided free of charge for members of the Fund recovering from illness. These convalescent facilities are provided by a convalescent home belonging to the Fund called "Philbeach", near Hythe, Kent. During the year 388 women and 350 children were received at the home.

It may be of interest to note that all the Directors and

Officers of the Companies, from Lord Ashfield downwards, are members of the Benevolent Fund.

The administration and management of the Fund is throughout a joint affair. The unit of management is the local committee, half of the members of which, called nominated members, are nominated by the Companies, and half, called elected members, are elected by the members of the Fund. The supreme management of the Fund is vested in the Council, constituted also on a joint basis, of representatives nominated and elected respectively from local committees, together with a certain number of other members. There are three Committees of the Council: (1) the Finance Committee, (2) the Relief Committee, and (3) the General Purposes and Publicity Committee. These Committees also are all joint committees, each consisting of ten members, five being elected members and five nominated members, together with the President, Chairman, and Vice-Chairman of the Council.

The Board of Trustees is also a joint board, two of the trustees being respectively a director and a secretary of the Companies and two being members of the staff.

Voluntary Schemes Administered by the Staff

The three voluntary schemes administered by the staff, of which particulars follows, are all friendly societies. While the administration of them is completely in the hands of the staff, the Companies encourage them in the following ways. In each case they supply free office accommodation; in each case they facilitate the administration of the societies by deducting members' contributions from the pay-rolls of the Companies: and in each case directors or officers of the Companies act, on the request of the staff, as trustees, and officers are prepared also to serve as auditors if desired. Apart, however, from giving encouragement to the societies in these and other ways, the Companies take no part in their administration or management.

(1) *The L.G.O.C. Employees' Death Levy, Distress and Sick Friendly Society.*

The objects of this Society are stated to be as follows:

(*a*) To provide for the assurance of various sums on the death of members and for the funeral expenses upon the death of the wife of a member;

(*b*) To relieve and assist its members during sickness and convalescence or during any other infirmity, whether bodily or mental, and in old age ;

(*c*) To provide funds for convalescence and for surgical, dental and other medical treatment ;

(*d*) To provide funds for incapacity benefit in accordance with the table set out in these Rules.

There are three separate sections of the Society, the Death Levy Section, the Sick Section, and the Provident Section. Scales of contribution and scales of benefit are laid down in the rules, as in the case of all friendly societies. The Committee of Management consists of a representative from each depot or works with not less than 150 members of the Society, elected by the members at their respective depot or works.

(2) *Underground Railways Death, Distress and Provident Fund.*

The objects of this Fund are stated to be as follows :

(*a*) Ensuring money to be paid on the death of a member and of a member's wife, single member's mother (who is a widow and totally dependent upon the member at the time of her death), and/or for the funeral expenses of a member who has no nominee.

(*b*) To provide for a member who is permanently incapacitated from following any employment.

(*c*) The relief of members during sickness, and when in distressed circumstances arising out of prolonged or exceptional sickness or misfortune of such members.

(*d*) To provide, through the medium of the Provident Section, a specified sum on retirement on attaining the age as stipulated by Rule.

The Committee of Management is elected by the various grades of the employees of the Company in accordance with a detailed schedule contained in the rules.

(3) *Supervisory Staffs Supplemental Pension Fund.*

The supervisory staffs organised a Pensions Fund to supplement the pensions granted by the Companies.[1] This is a friendly society which provides for the payment of pensions at the age of 65, varying from 10s. to £1 per week, in accordance with the contributions paid by members. For a weekly contribution of

[1] See pp. 142-144 above.

1s. commencing at the age of 25, for example, a pension of 10s. a week at the age of 65 is assured. The Fund is administered by a Committee of Management consisting of five members elected annually by and from among the members. It has recently been decided to extend membership of this Fund to the whole of the wages staffs of the Combine.

The British Electrical Endowment Fund

This Fund covers all salaried staff of the Tramways Companies in receipt of a salary of over £160 per annum.

Members pay a contribution of 6 per cent. of their salary and the Companies pay a like amount in respect of each member.

Members who have contributed for less than 10 years, on leaving the service, receive back the whole of their contributions *plus* one-tenth of the Companies' contributions for each complete year of contribution. Those who have contributed for 10 years and over receive back the whole of their own and the Companies' contributions.

Tramways Employees' Savings Association

This Association is open to members of the Tramways staff, and their wives and children over 16 years of age.

Deposits are received of any amount, subject to a minimum amount of 6d., and interest is allowed at the rate of 5 per cent. on every complete pound deposited.

Depositors wishing to withdraw any amount standing to their credit must give three clear days' notice in writing, but in cases of urgency sums of not more than £5 or less than 10s. may be withdrawn without notice.

Welfare

The Companies pay particular attention to the welfare, health, and comfort of their staff. They consider, however, that welfare work is definitely secondary in importance to the primary task of the establishing of satisfactory wages, hours, and general conditions of work. With this proviso, the Companies actively encourage a wide variety of welfare schemes. For this purpose a Welfare Committee has been appointed consisting of the

Managing Director and three ordinary directors selected from the Companies, for the review of :

(1) Staff welfare work ;

(2) the management of clubs, institutes, messrooms, sports associations, etc., for the benefit and use of the staff, and the appointment of any company representatives thereto ;

(3) pensions, gratuities, allowances, sick-pay and any other payments to the staff not being remuneration for services rendered ;

(4) subscriptions, direct or indirect, for the benefit of the staff ;

(5) educational facilities for the staff ;

(6) the staff magazine.

The main forms of special provisions for welfare are the following.

Messrooms

The Companies have provided 46 messrooms, of which 13 are for the use of the railway staff, and 33 for the staff of the London General Omnibus Company. These messrooms are part of or adjoin the railway depots or the omnibus garages. The staff can obtain hot meals at any time of the day, and in the case of the traffic sheds they keep open in many instances until 12 midnight, or even later.

These messrooms vary greatly in size corresponding to the number of men to be served and the character of the meals which they take. The messrooms at Chiswick and Acton, which serve respectively the staff occupied on repair of buses and on underground rolling stock, are capable of serving up to 1,000 midday meals at a sitting. That at Lots Road Power Station serves about 400 midday meals in three sittings. The others vary in size, some of them being quite small. The messroom at Victoria Station is intended mainly to serve cups of tea and hasty snacks to the omnibus drivers and conductors who have a minute or two to spare at that important terminus between their terms of duty. There is a central buying and distribution organisation

for the running of these messrooms. Practically all food (with the exception of milk and vegetables) is bought centrally and distributed in the Companies' vans to messrooms in various parts of the Companies' area. An interesting feature of this Central Organisation is that it employs a full-time chemist whose duty it is to analyse samples of the foodstuffs bought by the Companies, with a view to seeing that they are in accordance with specification, and to visit the various messrooms to examine and analyse samples of the food actually supplied to the men. A remarkably high standard of quality and cleanliness, combined with low prices, is characteristic of the messrooms.

A very considerable trade is done at the messrooms, the turnover in 1929 approaching a quarter of a million pounds. In adddition to being able to buy meals for consumption in the messrooms, the staff can buy in the messrooms goods for home consumption such as tea, sugar, bacon, flour, etc. It may be of interest to note that the messrooms sell on the average between 5 and 6 tons of tea per week. The messrooms are not operated for a profit, but if any surplus accrues as a result of their operating, it is utilised for the purpose of improving the messrooms or their equipment.

About 360 catering staff are employed in running these messrooms.

Sports Associations

Each of the separate companies has its own Sports Association, and there are numerous other associations of a similar nature throughout the organisation. The Companies have recently provided sports grounds in various parts of London for the use of the associations. It is impossible, owing to the distance between the various districts in which the staff live, to have a central ground, and it is for this reason that the separate grounds have been provided. The grounds are handed over free of charge to the association concerned with certain initial equipment, and the association itself is then responsible for the upkeep of the ground. In the main the sports associations are in a satisfactory financial condition, and they have met with considerable success in matches with other similar organisations.

The extent and variety of these sports associations are extraordinary. They include sections or clubs, not only for the playing

of football and of cricket, but also for swimming, quoits, cycling, golf, tennis, angling, motor cycling, bowls, and all indoor games such as billiards, chess, etc. There is also a rifle club, a dining club, and a philharmonic society which organises amateur theatricals and orchestral and concert performances. Preparations are being made for the holding of a " T.O.T. Gala " in which every officially recognised sports association within the T.O.T. Group is collaborating.

Institutes

Another enterprise which falls within the general heading of " Welfare " is that of the provision of institutes.

At various centres where large bodies of staff are concentrated the Companies have provided institutes (six in number), which are available for the use of the staff for general, social, and educational purposes.

These buildings, whilst remaining the Companies' property and maintained by them, are handed over to the Staff Associations for their free use, and the Executives of such Associations are entirely responsible for their management.

The largest of these institutes, the Albert Stanley Institute (called after Lord Ashfield), is at Hammersmith. The Institute contains a large hall for lectures, whist drives, dances, etc., together with billiard rooms, library, buffet, and various other facilities. In this Institute the staff provides various forms of entertainment for its members, one of which is the series of Christmas parties arranged for the children of members.

The general principle maintained by the Companies with regard to the sports associations and institutes is that the Companies confine their participation in them to the free provision and installation of the sports grounds and institutes. They, therefore, do not interfere with the management of these sports grounds and institutes, which is left entirely in the hands of the workers' own associations. The management does not take part in any of the activities of the associations and institutes unless it is invited to do so. As a matter of fact, the Chairman, Managing Director, and other directors and officers are frequently invited by the men to participate in galas, meetings, and other events. Directors and officers also frequently present cups and shields for competition between the various clubs and associations.

Staff Magazine

Reference should be made finally to the staff magazine ; this is called the *T.O.T.* It is edited by members of the staff, includes contributions from them, and devotes a large amount of space to detailed accounts of the doings of the various institutes, clubs, and sports associations.

The following figures for 1929 will give some idea of the importance of the work accomplished by this magazine.

The twelve numbers for the year 1929 comprised eight 28-page issues and four 32-page issues, a total of 352 pages in all. Of these, 181 were devoted to the Companies' affairs and general articles, 158 to social and sporting news, and 13 to staff advertisements ; 285 blocks were published, 1 less than in 1928. Of the 285 blocks, 51 related to the Companies' affairs ; 92 were illustrations to general articles or humorous sketches furnished by the staff ; 97 were concerned with social and sporting matters ; and 45 were small blocks of deceased members of the staff.

The total number of magazines sold (the price is one penny) during 1929 was 307,141, a decrease of 1,107 as compared with 1928. For 1929 the net cost per copy sold was increased by 0.033d. from 0.824d. in 1928 to 0.857d. in 1929. There was a deficit on the cost of running the magazine of £1,097 13s., which was paid by the Companies. During the year, 5,861 magazines were sent out (free) to retired members of the staff out of the totals returned by the agents.

The table on page 152 indicates the cost to the Companies in 1929 of the services described above under the headings " Insurance, etc. " and " Welfare ".

ANALYSIS OF WELFARE COSTS INCURRED BY THE COMMON FUND COMPANIES IN 1929

Details	Railways	L.G.O.C.	Total	Remarks
	£	£	£	
A. *Statutory Liabilities :*				
1. Railway Clearing System Staff Superannuation Fund	7,689	—	7,689	In the case of present employees the Company contributes an equal amount to that subscribed by the members, but the responsibility of the Company under various Acts involves additional payments in respect of certain of the superannuated staff, and these are included in the total costs shown.
2. National Insurance :				
(*a*) Health	15,960	55,999	71,959	Weekly contributions are made by employees and employers as follows : Men 9d. Employee, 9d. Company; Women 6d. Employee, 7d. Company.
(*b*) Unemployment	5,518	48,776	54,294	Weekly contributions are made by employees and employers as follows : Men 7d. Employee, 8d. Company; Women 6d. Employee, 7d. Company.
3. Workmen's Compensation	3,272	9,357	12,629	This is a Companies' liability under the Workmen's Compensation Acts—no contribution from staff.
B. *Non-Statutory Liabilities :*				
1. Omnibus, Railway, and Equipment Companies Staff Superannuation Fund	5,818	22,385	28,203	The members and Companies contribute equal amounts.
2. T.O.T. Benevolent Fund	1,651	5,809	7,460	The members and Companies contribute equal amounts.
3. Sick pay and additional benefits in connection with National Health Insurance	7,894	26,303	34,197	Sick pay granted to employees in accordance with a scale varying for different grades ; additional benefits to members of Companies' Approved Societies.
4. Ex-gratia pensions and grants	10,271	20,570	30,841	
5. Deficit on working of messrooms	8,440	3,766	12,206	
6. Institutes	1,852	3,333	5,185	
7. Miscellaneous education and miscellaneous expenditure	864	3,498	4,362	
Total	**69,229**	**199,796**	**269,025**	

Conclusion

We may fittingly conclude this account of industrial relations in the London Traffic Combine by quoting two extracts from speeches of recent years by Lord Ashfield, Chairman of the Companies :

We have always shared our prosperity with our employees, and even when we were unable to pay anything like adequate dividends we have not failed to maintain our wage levels at and even above those paid in comparable businesses. In the last five years, although the index number for the cost of living has fallen from 180 to 167 points, we have slightly increased the average wage paid to our staff; the percentage increase being 6 per cent. We have achieved this result by two means. We have received better service from our staff, and for this I would make full acknowledgment, and we have enabled that better service by putting at their disposal the best equipment and machinery that we could obtain. From 1924 to 1928, in five years, we have increased the car mileage run by trains, omnibuses and trams from 227 to 274 millions of miles, or by 21 per cent. Yet the number of persons employed has only increased from 41,700 to 43,500, or by 4 per cent. In this last year our services have expanded by 6 per cent., yet our staff has been kept practically stationary. Paying, therefore, as we do, as good or better wages than any other transport undertaking, we should be entitled to expect that we have a contented and loyal staff. Certainly, I know of nothing to the contrary, but rather find everywhere a good and friendly spirit which adds much to the happiness of our family of officers and men. I am glad to be able to tell you of it. [1]

Upon the railways the average cost of operation per car-mile has fallen nearly 5 per cent., a noticeable advance under the circumstances, for these economies are not easily obtained, and it is only by a constant and active attention to the details of your business that ways and means are found by which costs may be diminished. For we have not proceeded by means of any reduction of wages. We thought that you would not wish us in our circumstances to take advantage of the agreement reached between the trade unions and the Main Line Railway Companies for a reduction of 2½ per cent. in the wages and salaries paid. Indeed we have during the year, of our own initiative, raised the wages of some of our employees, being those whose wages were at the lowest level, hoping by this to raise their standard of livelihood. Nor have we proceeded by any dismissal of established employees. We have, indeed, carried throughout the year some surplus of staff rather than cause unmerited hardship by our own measures for elimination of labour and increase of efficiency. Rather we have sought, by the introduction of new and better machinery, the wider application of power, the adoption of whatever would seem usefully to meet our purpose to increase the volume of service rendered by our staffs, to convert our staffs as far as we reasonably can from unskilled to semi-

[1] Report of the Proceedings at Annual General Meeting of the Underground Electric Railways Co. of London, Ltd., 7 March 1929, p. 4.

skilled and eventually to skilled labour. In the year 1928, although the *bona fide* increased operating expenditure was only £531,000, or less than 5 per cent., the number of miles run by our cars and omnibuses was increased 14,000,000, or over 6 per cent. It is a slight indication of the efforts put forward by those responsible for the conduct of your affairs to make their contribution to the results which I am now privileged to place before you. I am sure you would wish me on an occasion such as this to thank them all. They include every rank of our employees. From top to bottom we get suggestions. Last year we dealt with 5,480 suggestions of varying merit, but none too small for consideration. They help us in our labours. From top to bottom we get discipline and courtesy; we get patience and persistence; we get ingenuity and care. And throughout the year we have had no discord. We have lived in the friendliest relationships bent only on discharging as best we were able the tasks before us.[1]

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[1] Minutes of the Proceedings of the Company, 21 February 1929, pp. 11-12.

THE STATE MINES OF THE SAAR BASIN

General Conditions of Production

The Saar Basin is an elongated zone of coal-bearing land stretching from south-west to north-east; the best-known part is dome-shaped, while the ends of the zone lie at inaccessible depths. Only the central region of the Basin is worked at present, that is to say, where the dome approaches the surface and in the neighbourhood of the outcrops. This region extends for about 50 kilometres, varying in width, which is at most 20 kilometres, from Frankenholz on the north-east frontier of the Saar Territory to a little beyond the borders of Lorraine.

The presence of coal in this region appears to have been known in the Middle Ages, but for a long time there was only some scratching of the outcrops, and it was not until the eighteenth century that any organised exploitation of the coal began. In the Saar, as elsewhere, it was the development of large-scale industry and the consequent rise in the demand for fuel that finally set the coal-mining industry on its feet. The oldest statistics of production available give a figure of 14,292 tons for the output in 1767. This output increased rapidly under the French occupation. It was about 30,000 tons in the troublous years of 1794 and 1795, and rose to 104,680 tons in 1811. It continued to increase by leaps and bounds under the German regime, rising from 100,320 tons in 1816 to 701,689 tons in 1850, 6,572,468 tons in 1890, and 13,216,309 tons in 1913.

This huge increase in output would have been impossible without a steady influx of workers, most of whom came from the neighbouring districts of Germany. At the beginning of the nineteenth century the total population of the Territory was only a few thousand; yet the number of persons employed in the mines alone was no less than 5,163 as early as 1850, 31,166 in 1890, and 56,539 in 1913, if salaried employees and officials are included.

By that time, moreover, the coal-mining industry was not the only great industry of the country. Its existence had attracted other branches of production, especially the heavy metal industry, which now employs nearly 35,000 workers. In brief, the Saar Basin had become one of the most highly industrialised areas in Europe, with a particularly dense population[1], which offered a reserve of labour heir to long-established industrial traditions. But the coal industry easily held first place, since it employed 56,000 persons, or over one-third of the working population.

This vast mining area[2] was exploited under the German regime by four separate undertakings. Since 1815 it had been divided between Prussia and Bavaria, and nearly the whole area was worked by the State. Besides the State mines there were only two private undertakings, the small mine of Hostenbach in Prussia and that of Frankenholz in Bavaria. The Prussian State mine was by far the most important. Its administrative organisation, established in 1861, was much the same as in Westphalia and Silesia. The great extent of the coalfield, at a period when the means of communication were far behind their present stage of development, had obliged the Government to divide its administration into a certain number of districts. The administrative working unit was the inspectorate, whose director was immediately responsible to the Minister of Commerce and Industry in Berlin. Twelve inspectorates with separate administration and finance had thus been organised. The *Bergwerksdirektion* sitting at Saarbrücken was in fact a body for supervision and the reasoned transmission of instructions rather than one holding true powers of management.

When France, under Article 45 of the Treaty of Versailles, had acquired the ownership of all the mines in the Saar Territory, she decided to concentrate their exploitation under the direct administration of the State. The only exception made was for the Frankenholz mine, a relatively unimportant one, which was leased to a French company. For the rest, while maintaining the old division into inspectorates, with only slight modifications, the French State organised the Basin as a single undertaking,

[1] 374 persons per square kilometre (= 969 per square mile) in 1913.

[2] We are here speaking only of the exploited part of the Basin which is at present comprised within the frontiers of the Saar Territory, excluding what is beyond the Lorraine frontier. Even under the German regime the latter part was worked by private enterprise.

placing the mines situated within 30 kilometres of Saarbrücken under a single technical and commercial management.

This system of organisation, as defined by the Decree of 23 October 1919, was put into operation as soon as the Basin was taken over on 18 January 1920. Under these provisions the management of the State mines in the Saar is subordinate to the Minister of Public Works in Paris, who delegates his executive authority to a Director-General at Saarbrücken, assisted by a Board of fifteen members. This Board, of which Mr. Arthur Fontaine, Chairman of the Governing Body of the International Labour Office, is Chairman, includes representatives of the ministerial departments concerned, persons selected for their expert knowledge from among coal consumers, mine owners, and former French miners. Although a purely advisory body, the part it in fact plays may well be compared to that of the board of directors of a mining company. Similarly, the powers of the Director-General at Saarbrücken resemble those of the head of a great private undertaking, and it is the customs of private industry that have been followed in drawing up the staff regulations, the systems of administration and accounting, and the methods of technical and commercial exploitation.[1]

At the time when the working of the Saar mines was taken over by the French Administration, the output was well below the pre-war level. In 1919, the last year of the German Administration, it was only 8,981,299 tons as compared with 13,216,309 tons in 1913, while the number of persons employed had risen from 56,589 to 61,964. The average daily output (underground and surface workers together), which before the war was 777 kilograms, had fallen to 524 kilograms in 1919. In January 1920, the month when the French took over the working of the mines, it was only 475 kilograms.

There were many reasons for this decline. During the war the calling up of members of the managing and supervisory staffs had seriously disorganised the exploitation. The search for easily worked seams involving a minimum of preparatory work had led to a wide dispersion of the working faces. It had not been possible to renew in time the mechanical equipment worn out by five years of war working. The workers themselves were tired and physically and morally weakened. The relaxation

[1] Cf. *Science et Industrie*, Jan. 1924 (number devoted to the Saar): "Les mines domaniales de la Sarre", pp. 51-60.

of discipline due to the Revolution had affected the output of the productive workers and swollen the numbers of the unproductive. Hours of work had been considerably reduced [1], but as yet no steps could be taken to compensate for this reduction. Finally, the German engineers were themselves demoralised by the certainty of shortly being compelled to leave the mines they were running.

In this critical situation all the attention of the French Administration was obviously devoted to increasing the total output and improving the output per worker. The following figures, taken from a table communicated to the writer by the Technical Directorate of the Mines Administration, shows the results obtained in this respect during the last ten years.

AVERAGE DAILY OUTPUT (UNDERGROUND AND SURFACE WORKERS, INCLUDING GENERAL SERVICES) FOR ALL THE STATE MINES, 1920-1929 [1]

(In kilograms)

Month	Year									
	1920	1921	1922	1923	1924	1925	1926	1927	1928	1929
January	475	538	621	710	770	787	785	837	906	787 [3]
February	505	508	641	439 [2]	783	793	798	854	919	934
March	500	510	657	124 [2]	795	805	808	837	937	965
April	488	514	647	249 [2]	782	788	783	821	904	971
May	478	533	642	456 [2]	772	777	779	826	917	959
June	473	552	658	603	767	768	784	837	932	970
July	477	573	677	698	784	561 [3]	778	837	920	991
August	447	586	684	723	792	722	782	851	948	1,001
September	479	600	683	744	791	783	782	860	944	976
October	497	588	682	749	793	798	793	874	972	1,000
November	500	588	681	747	779	791	805	899	971	1,010
December	505	617	687	743	797	794	824	889	965	1,012

[1] The figures used for this table are those of the output after screening, i.e. they give the weight after deducting the dirt removed by screening, but not that removed by washing. The monthly figures of net output for 1929 would be on the average 87.7 per cent. of those given in the table.

[2] Strike of 100 days.

[3] Ca' canny strike.

[1] The time spent in the mine, including descent and ascent, had been reduced from 8½ to 7½ hours for underground workers, representing 6 hours of actual work instead of 7. The hours of attendance of surface workers had been fixed at 8 instead of 12 a day, representing an actual working day of 7½ to 7¾ hours instead of 10.

In a note commenting on these figures the Technical Directorate discusses the reasons for the successive changes in output, and from this point of view distinguishes three periods.

The first period is from the beginning of 1920 to the beginning of 1923. The increase in output during this period, which was about 49 per cent., seems to be due to personal rather than to material factors. Greater concentration of the work and better organisation of the administrative services resulted in a progressive increase in the percentage of productive workers. The ratio of the number of days worked at the face to that of the total number of days worked (underground and at the surface) was raised from 38 per cent. in January 1920 to 48 per cent. in September 1922, and was then stabilised round about the latter figure. At the same time there was also an improvement in the output of the productive workers under the influence of various moral factors, among which the payment of the miners in French francs seems to have played an essential part. This measure, adopted at a time when the mark was still current in the Saar and was rapidly depreciating, increased the purchasing power of the miners' wages; the consequent improvement in their general well-being created an atmosphere favourable to the progressive re-establishment of discipline and technical skill, as well as to the workers' acceptance of new methods of working. The average output per worker at the face, which is the best measure of this revival of individual output, thus rose from 1,239 kilograms a day in January 1920 to 1,376 kilograms in January 1922, and to 1,452 kilograms in December of the same year.

The second period, from July 1923 to the end of 1926[1], opened under less favourable auspices so far as the moral factor is concerned. The depreciation in the French franc; the rise in the cost of living; the fall in the purchasing power of wages, which was felt more especially by the German workers living outside the Saar, who saw wages being revalorised in the rest of Germany owing to the stabilisation of the mark: all these tended to create in 1924 a psychological atmosphere unfavourable to the French Administration. To these circumstances the depression

[1] Between the first and second periods there was a strike of 100 days, which disorganised the working of the Saar mines at the time of the occupation of the Ruhr (February-May 1923); its effects on production were felt until the end of the first half-year. As the reasons for this strike were political rather than economic—the dispute breaking out at a time when the purchasing power of wages had reached its highest point—it seems unnecessary to discuss it here.

in the coal industry, which began in 1925, added discontent caused by short time and the fear of dismissal. Agitation reached its culminating point at the beginning of July 1925, when the workers started a ca' canny strike. The daily output, which was still 41,474 tons on 1 July, fell to an average of 25,500 tons between 3 and 25 July. Finally, on 27 July the trade unions declared a full strike, which lasted five days and was followed by a general resumption of work after the conclusion of a new wage agreement.

Nevertheless, this second period taken as a whole shows an increase, slower but gradual, in output, amounting in all to 20 per cent. of the initial figure. It seems therefore that this increase should not be attributed to the same causes as that in the first period. Circumstances were on the whole unfavourable to the zeal and discipline of the workers. Furthermore, the process of concentrating the work had already been carried out; there was scarcely any further change in organisation and the proportion of productive workers remained constant. The factor that had a preponderating influence during this period was the material factor.

As a matter of fact, the Administration had not waited until now to attend to this side of the question but had at once taken in hand a whole programme of new schemes to increase individual output and so compensate by mechanical means for the loss due to the reduction in hours of work.

With a view to increasing the mechanical power available for underground workers, the production of compressed air was increased. In order to reduce the time spent by the workers on the journey between the shaft and the face, landings on two levels were made in several pits so as to speed up the process of filling and emptying the cages for the descent and ascent of the men. Similarly, auxiliary shafts were made for the descent of men working at more distant places in the mine.

But this programme took some time to carry out and its effects could not be felt at once. It was not until 1922 that the first five compressors of the new standard model adopted could be installed. Nine more were installed in 1923, two in 1924, four in 1925, and five in 1926. The annual consumption of compressed air, which was about 1.558 million cubic metres in 1920, rose to over 2,232 million cubic metres in 1925, and to 2,433½ million cubic metres in 1926. a level which was maintained until

the end of 1928. This increased mechanical power was used to operate a steadily improving equipment for assisting or replacing hand labour. The number of mechanical drills rose from 2,016 at the beginning of 1920 to 3,277 at the end of 1926; that of mechanical picks from 4 to 2,493, and that of coal-cutting machines from 824 to 1,564. The length of suspended shaker conveyors for the transport of coal or waste rock between the working face and the tubs rose from 14,027 metres at the beginning of 1920 to 25,049 metres at the end of 1926. The length of belt conveyors, which were non-existent in 1920, was 1,160 metres at the end of 1925 and 2,200 metres at the end of 1926.

By the end of the second period the principal parts of the new programme[1] had been completed. Their effects on output were to be increasingly felt during the following years.

This third period, which opened at the end of 1926, was characterised from the outset by a marked improvement in the psychological atmosphere, owing to the rapid rise, followed by the stabilisation, of the French franc, which resulted in a revalorisation of the miners' wages. Furthermore, the depression in the coal industry, which was intensified after the English strike, was soon to drive the Administration to adopt a series of measures that by increasing output helped to bring down the cost of production.

Faced with an accumulation of stocks, which had risen from 68,000 tons to over 300,000 tons in three months, the management decided on 27 March to cease engaging new workers. This purely negative measure was insufficient to prevent the increase in stocks, which was still nearly 80,000 tons in one month, and the management decided on a first reduction of staff. On 2 May it dismissed all workers holding a pension, and pensioned off all those of over 65 years of age, as well as those of 60 to 65 years of age not occupying useful positions. It was thus able to eliminate about a thousand workers whose output was generally rather low.

The combined effect of these various measures was that the number of workers employed fell by slightly over 6,500 in ten months, from 73,938 in February to 67,345 in December 1927.

[1] It is clearly not within the purview of this article to study the process of rationalisation carried out in the Saar mines. All that can be done is to give a few examples of special interest from the point of view of individual output and the material conditions of the work.

But the depression in the market for coal continued to grow worse. In spite of 22 days of forced unemployment during the year, stocks at the end of December passed the disquieting figure of 600,000 tons, having nearly doubled since the end of March.

In these circumstances the management decided at the beginning of 1928 to continue the process of dismissal, and this time to make a radical, and if possible definitive, reduction which, once effected, would relieve the remaining workers from the constant threat of dismissal and the burden of short time. This measure was applied to specific categories. On the ground that it was to the general interest of the Territory to keep the Saar workers employed wherever possible, the management dismissed about 2,000 workers living outside the Saar, including nearly 750 surface workers. It also dismissed Saar workers who had a subsidiary occupation, and all those who had been engaged at an age of over 18 years and had worked in the mines for less than two years, the argument being that they must previously have been engaged in some other occupation and were not yet so far trained as miners as to make it difficult for them to be reabsorbed in some other industry. Fathers of families, however, with four or more dependent children were exempt from dismissal.

This time the effect was decisive. In addition, the unsatisfactory situation of the coal-mining industry had already induced a large number of workers to leave the mines to look for work elsewhere, and the prohibition against engaging new workers continued to produce its effects, so that the number of workers fell rapidly. From 66,579 at the end of January 1928, it fell to 61,362 at the end of March, and to 59,663 at the end of April, and remained round about this figure until the end of the year. By the beginning of May 1929 stocks had fallen to 64,000 tons, and the prohibition against engagements was relaxed. The inspectorates were authorised to engage workers of under 18 years of age, and it was stated that consideration would be given to individual applications for employment above that age.[1] The number of workers, which had fallen to 59,483 on 31 May 1929, thus rose to 60,359 on 31 October.

This total reduction of some 12,000 to 14,000 workers not

[1] Immediately after a serious accident in a Lorraine pit close to the Saar frontier the neighbouring inspectorates were even authorised to engage Saar miners of up to 30 years of age who had been thrown out of work by the accident.

only enabled the Administration to bring down production to within the limits of marketing possibilities ; it also tended to improve the quality of the staff. By pensioning off aged and infirm workers, by dismissing miners with less than two years' service whose training was still incomplete, and finally by the voluntary departure of a large number of mediocre workers who feared the possibility of dismissal, the management found itself at the head of a younger, better selected, and more tractable staff, whose output was no longer affected by uncertainty for the morrow. It took advantage of this favourable atmosphere to carry out a set of rationalisation measures that were profoundly to modify the individual miner's methods of work and would in other circumstances have run the risk of meeting with strong resistance from the workers affected.

The tendency of this new programme was to introduce, wherever circumstances did not make it absolutely impossible, a uniform method of working, the long-wall method being given the preference over the pillar-and-stall method. It is true that there were already several cases of long-wall working in the Saar, and their number had increased during the last few years, but so far there had been no idea of standardising the type of working face and adopting the same working unit for all mines. To give an idea of the scope of this reform and its effects on working conditions, we cannot do better than quote the terms of the document of the Technical Directorate already mentioned :

> The economic principle of the reform consisted in the systematic rejection of the advantages presented by the existence of certain pillar-and-stall units worked by specially expert miners. A few particularly brilliant workers have thus been lost in the mass, but the output of the average worker has been increased by applying the principles of modern large-scale industry to mining. The transition from pillar-and-stall to long-wall working is in effect a change from a sort of home work, subject to the control at longer or shorter intervals of a passing foreman, to work in a workshop under constant supervision.
>
> The general adoption of long-wall working has also made it possible to apply to the extraction of coal that system which is the cardinal feature of rationalisation, namely, flow work. In long-wall working, equipped with a shaker conveyor that removes the coal and brings back waste rock for packing, each worker is an element in a chain of workers ; the rhythm of his work is determined by a transport device under mechanical control, and this rhythm he must maintain on pain of interfering with the work of the other workers in the chain.
>
> The conveyor, which disposes of the produce at a given rate and moves along the face with a fixed rhythm, makes the long-wall

shift into a sort of composite individual, capable of a personal effort and endowed with a collective consciousness. Moreover, this mechanical regulation by the conveyor may at any time be modified by the supervisory staff; up to a certain point, therefore, it invests the long-wall shift with the qualities of an individual, so that the psychological weaknesses otherwise inherent in large shifts are no longer feared, and it has been possible gradually to increase the size of the productive unit. In point of fact, the size of a long-wall working is now limited only by the efficiency of the haulage ways serving it, and the tendency in the State mines of the Saar appears to be towards the adoption of a standard working face producing 300 to 400 tons a day.

The increased size of the working face leads also to a further concentration of the work[1], which in turn allows of better and more concentrated organisation of the administrative services without a relative increase in their staff. It also makes possible a more complete and general use of mechanical equipment, in particular shaker and belt conveyors, the length of which increased from 25,049 metres (at the end of 1926) to 35,320 metres (on 1 October 1929) for suspended shaker conveyors; from 4,965 metres to 18,163 metres for shaker conveyors on roller or ball bearings, and from 2,220 metres to 4,470 metres for belt conveyors. Finally, it necessitated a reform in the system of raising and lowering the workers in the pits, which in turn reacted on output.

It was found necessary, in fact, to prevent the work of the whole gang from being disturbed for a few moments at the beginning and end of every shift, owing to the irregular arrival of the men at the working face. The elimination of these disturbances, which tended to reduce the hours of actual work, was all the more important for the large shifts, for with the system of flow work the delay of some was likely to paralyse the work of all. According to the new instructions, all the workers had to descend and ascend together with their foreman in such a way that the whole number could be at work from the moment they arrived at the working face until they left for the ascent. Furthermore, to reduce fatigue and loss of time on the journey between the shaft and the face, trains of trucks were placed at the disposal of the men whenever circumstances allowed.

The reform of the system of descent was to lead to another, again directly affecting the workers. To facilitate the descent of

[1] In one inspectorate visited by the writer the number of workplaces, which was 73 at the beginning of 1920, has now been reduced to 8; at the same time the daily output has been more than doubled and the number of workers has been reduced from 2,600 to 2,400.

the men, and also to shorten costly and fatiguing journeys, a special recruiting zone was assigned to each pit, corresponding to the easiest means of communication. Next, on the basis of this plan, an attempt was made to assign to each inspectorate, by means of transfers from pit to pit, the workers resident in its normal recruiting zone; 7,000 individual transfers have so far been effected and the operation is not yet terminated.

Under the cumulative effect of all these measures the average daily output (underground and surface workers together) continued to rise steadily during the third period. From 837 kilograms in January 1927 it increased to 889 kilograms at the end of that year, and to 965 kilograms a year later, reaching in August 1929 the figure of 1,000 kilograms[1], which meant for the thirty-two months a further advance of 38 per cent. on the initial figure (January 1920) and brought the total advance in less than ten years to over 100 per cent. An examination of the figures shows that this improvement during the third period was almost entirely due to an increase in the average output of workers at the face, which rose from 1,859 kilograms in January 1927 to 2,264 kilograms in August 1929, representing an improvement of over 35 per cent. on the initial figure (January 1920). Moreover, there was only one noticeable decline during the period, namely, in January 1929, when a ca' canny strike reduced the total daily output by 10 to 25 per cent. during a fortnight and brought down the average daily output of workers at the face to 1,838 kilograms, and that of all workers (underground and surface) to 787 kilograms. This dispute, which will be discussed in more detail later[2], as a matter of fact had nothing to do with the introduction of the rationalisation measures. It was due to the trade unions' opposition on principle to a new method of calculating wages that the Administration wished to introduce for hewers, rather than to a difference of opinion as to the amount of wages.

This brief survey of the general conditions of working of the Saar mines since 1920 gives some idea of what has been done by the Administration to increase individual output during each period. At the present time the 1913 level is far exceeded, in spite of the substantial reduction in the working day. The work of

[1] There has been further progress since the end of 1929. In December the figure was 1,012 kilograms and in January 1930 1,029 kilograms.

[2] In the section dealing with wages, p. 200.

the Administration would certainly not have borne the same fruit if it had been unable to count on the intelligent collaboration of the intermediate grades and on the goodwill of the workers. For in the last resort it is the foreman who ensures the proper application of the methods of work decided on by the management, and the absence of a spirit of collaboration and confidence among the workers would have made it impossible to bend them to such far-reaching changes in their habitual methods of working, or to embark without serious friction on such large-scale measures as the dismissal of several thousands and the transfer from one pit to another of about 7,000 workers.

Before analysing the methods that facilitated the establishment of these satisfactory relations between the Directorate of the Saar mines and its staff, some account may be given of the composition and characteristics of the latter.

The Staff

The registered staff of the Saar mines on 31 October 1929 was made up of 60,359 manual workers and 3,391 engineers and salaried employees.[1]

The principal characteristic of the staff of manual workers is its extreme homogeneity. When the French Government took possession of the mines in 1920 it kept on all the miners employed in them, and at no time since then has it been obliged to have recourse to foreign labour. Apart from a few men from Lorraine, most of whom were already at work under the German regime and were taken over with the whole staff in 1920, it may be said that all the workers are of German origin.

The vast reserve of labour that accumulated in the Territory during the last century and is continuing to grow by natural increase and by slow attraction exeried on the neighbouring districts[2] has been sufficient to provide the mines with all the workers they have needed, even at the time when the staff reached the high figure of 74,000 in 1927.

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[1] The corresponding figures on 31 December 1929 were 60,793 workers and 3,383 engineers and salaried employees, and on 28 February 1930, 60,768 workers and 3,380 engineers and salaried employees.

[2] From 1920 to 1926 the population of the Saar rose from 697,000 to 786,000. The excess of births over deaths was about 67,000, the net immigration about 23,000. (*Jahresbericht der Abteilungen Volkswohlfahrt, Landwirtschaft und Forsten, Arbeitsamt u. Sozialversicherung der Regierungskommission des Saargebietes*, 1928, p. 8.)

On 1 December 1925, when there were already nearly 70,000 workers, their distribution by country of origin was as follows [1] :

Country of origin	Number	Per cent. of total
Saar	58,035	83.41
Germany	10,902	15.67
France	495	0.71
Other countries	143	0.21

Among the 10,902 workers born in Germany, about 7,500 came from the Prussian and Bavarian districts nearest to the Saar Basin, and 1,750 from other districts in the neighbourhood of Trier and the Bavarian Palatinate. The recruiting zone for the Saar mines thus remains almost entirely within very narrow limits around the actual Basin.

A fair proportion of these miners of other than Saar origin, moreover, come from so near the frontier that they have not had to change their residence in order to work in the Saar. On 1 December 1925 over 6,700 workers, or nearly 10 per cent. of the total, had thus kept their homes in Germany. The number has fallen since then, as the reductions in staff in February and March 1928 were most drastic among this category. There are still, however, about 4,300 of them.

This homogeneous and locally recruited staff offers from the employers' point of view the further advantage of permanent attachment to the trade. In this mining country, where coal has been exploited industrially for over a century, a population of born miners has been formed, whose trade is held in special honour, so that usually the son's only ambition is to accompany his father down the pit as soon as he is old enough. Many workers in other industries, even when better paid, such as the building trades, would be glad to go down the pits if they could get employment there. This special esteem in which mining is held may be partly explained by the advantages that have long been connected with it : greater stability due to administration by the State ; the prospect of an old-age pension ; shorter hours of work for underground workers and therefore more opportunity for family life. Such workers do not only bring with them strong traditions handed down from generation to generation ; once they have entered the mining industry, it is fairly certain that

[1] *Statistique du personnel ouvrier des mines et usines de l'Administration des mines domaniales françaises de la Sarre, d'après les résultats du recensement du 1er décembre 1925*, p. 5 and table VIII. Saarbrücken, 1927.

they will not leave it again and that their only ambition will be to spend their life in it. Since in the Saar almost the whole Basin is under a single management, they have not even the power of changing their employer. Unless they learn a new trade—and this will often be prevented by age, technical specialisation, or the state of the labour market—leaving the industry, whether voluntarily or compulsorily, entails the most serious risks and will often lead to expatriation.

Now, expatriation for the Saar miner is all the more serious in that he is linked not only with the mine, but in many cases also with the land. On 1 December 1925, out of a total of just under 70,000 workers, there were nearly 23,000 owners of real estate (35 per cent.), namely, 11,094 owning land and houses, 11,707 owning houses only, and 1,068 owning land.[1] Assuming that a worker is usually not in a position to acquire a house or land before the age of 30 years, and knowing that the number of workers of over 30 years on 1 December 1925 was under 33,000, we see that the owners of real estate formed about two-thirds of this figure. It is not surprising, therefore, that in these conditions the length of service of miners is usually considerable. This will be seen from the following figures, taken from the census of workers of 1 December 1925[2]:

Length of service (years)	Number of workers
Under 1	3,866
1– 5	16,917
6–10	12,768
11–15	7,891
16–20	7,442
21–25	6,787
26–30	7,017
31–35	4,361
36–40	1,923
41–45	558
Over 45	45

It is naturally to the advantage of the management to maintain and encourage this desire of the workers for stability, which is the result of circumstances as well as of natural inclination. The seriousness of the effects of dismissal places a formidable weapon in the hands of the management; but for this very reason it will avoid using it unless absolutely necessary, under penalty

[1] *Statistique du personnel ouvrier, etc.*, p. 4 and table I.
[2] *Ibid.*, table IV.

of being accused of inhumanity. Besides, future recruiting may be compromised unless it keeps intact this feature of security, which has hitherto formed one of the principal attractions of mining.

This is no doubt one of the reasons why, when economic conditions made it necessary in 1928 to restrict production, the Mines Administration preferred a sudden and radical operation that would at once free the remaining workers from the fear of dismissal to spreading the dismissals over a long period, and thus producing general uncertainty, which would not only have injured output but might have created a certain dislike for the occupation.

The following table shows the changes in the staff of the State mines of the Saar during the last two years.[1]

LABOUR TURNOVER IN THE STATE MINES OF THE SAAR, 1928 AND 1929

Month	Number leaving						Number engaged
	Died	Pensioned off	Dismissed	Left voluntarily	On promotion	Total	
1928 :							
January	23	514	34	138	25	734	16
February	16	450	2,808	247	1	3,522	4
March	16	393	1,006	264	3	1,682	31
April	23	393	32	256	4	708	36
May	8	292	25	247	7	579	32
June	10	325	20	242	7	604	39
July	19	180	27	244	29	479	87
August	15	138	27	188	2	370	327
September	9	156	27	205	5	402	462
October	13	177	33	169	1	393	562
November	8	160	30	117	1	316	475
December	13	79	15	57	2	166	363
1929 :							
January	17	90	22	111	8	248	166
February	14	71	15	80		180	176
March	26	127	14	140	11	318	158
April	13	109	23	199	3	347	233
May	21	51	20	165	2	259	222
June	18	132	11	144	4	309	404
July	20	128	43	154	15	360	430
August	22	89	23	122	1	257	524
September	16	106	16	151	5	294	328
October	17	113	18	118	4	270	720
November	13	68	17	57	2	157	529
December	18	64	15	57	51	205	245

[1] These figures, like most of those contained in this study, have been kindly supplied by the Labour Department of the Mines Administration.

It will be seen that the number of dismissals is quite insignificant, except in February and March 1928, when the great reduction of staff took place. It will also be noted that there was a slight increase in the number of workers leaving voluntarily during the months following this wholesale dismissal. Finally, the large number pensioned off during the first six months of 1928 illustrates the tendency of the management to apply the process of reduction primarily to elderly workers able to claim a pension.

It is a corollary of the workers' security of employment and long service that the average age of the staff is relatively high. It was 32½ years on 1 January 1926, at which date there were in the Saar mines about 1,650 workers over 55 years of age.[1] It is true that, when the staff was reduced in 1927 and 1928, the management tried to eliminate the older workers first by pensioning them off; but as this elimination was accompanied by an almost complete prohibition against engaging new workers, there was hardly any fall in the average age of the staff. On 31 December 1928 it was still 31.6 years.[2]

Should the relatively high average age of the staff be taken as accounting for the sense of discipline and balance that the management attributes to it? Should it be concluded that the young single worker is less easy to handle than the older worker with a family? The fact remains that in the Saar nearly two-thirds of the workers are married and that the average number of persons dependent on the miner is just over two.[3]

But in these matters hasty general conclusions should be avoided. Small though the Saar Territory may be, it offers surprising contrasts from one district to another, and side by side with one pit where the workers appear to be pliable and ready to respect the authority of their leaders, there will be others where they are irritable and easily offended. In the Basin as a whole, however, the spirit of discipline is by far the most general. It is not limited to the workplace; in their spare time the workers are often willing to submit to collective discipline instead of engaging in individual amusements. On public holidays, for instance, they will often leave their families to join in a choir or orchestra, finding their pleasure in the united effort to produce a general effect.

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[1] *Jahresbericht des Saarknappschaftsverein für das Kalenderjahr 1926.*
[2] *Idem*, 1928.
[3] *Statistique du personnel ouvrier, etc.*, pp. 3 and 4, and table I.

This collective consciousness has been utilised and at the same time developed by the trade unions. Before the war the movement was persistently thwarted by the Prussian Administration, but after the Revolution it conquered the whole territory in a day. At first the "free" (Social-Democratic) unions benefited most, but since then the workers have shown a tendency to prefer the Christian trade unions. This tendency, it may be added, appears to be the result less of any dislike among the younger workers for the Social-Democratic unions than of a change in outlook among the older workers, leading them to leave these unions and join the Christian unions.

At the present time 90 per cent. of the workers employed in the Saar mines are organised. They are divided among the four great German unions concerned: the Social-Democratic Miners' Federation (*Verband der Bergarbeiter Deutschlands*) has nearly 25,000 members among the workers in the mines, and the Christian Federation (*Gewerkverein Christlicher Bergarbeiter Deutschlands*) about 28,000; in addition 1,500 metal workers employed in the mines belong to the Christian Metal Workers' Federation (*Christlicher Metallarbeiterverband*), and nearly 1,000 to the Social-Democratic Metal Workers' Federation (*Deutscher Metallarbeiterverband*).

The activities of the Saar unions are thus closely bound up with those of the great German federations. At the same time, their large membership and the close contact they have always maintained with each other in economic and social questions have given them absolute control over collective relations with the employer.

* * *

In addition to the manual workers, whose composition and characteristics have been discussed above, the Saar mines now employ about 3,400 engineers and salaried employees. This group is far from presenting the same homogeneity as that of the workers. When the French Administration took over the Saar mines it was unable to keep in its employment the staff of German engineers who had run the mines until then, who were dismissed and replaced by a strengthened staff of French engineers. On the other hand, it retained some 2,000 German salaried employees, who formed the supervisory and clerical staff. Under the German regime these employees had not all had the same status: 1,600 or 1,700 were Prussian or Bavarian officials, and

in this capacity were not liable to dismissal *(unkündbar)*, except for disciplinary reasons ; their pension rights also were much higher than those of the French officials. The French Administration allowed them to keep all their privileges. The others, who under the German regime were paid by the day or month without any special guarantee, were taken on under new regulations, which were drawn up on the basis of the customs of private industry. It was also decided to apply these regulations to all German employees engaged in future.

In these conditions, it was inevitable that the number of " officials " should fall year by year. Circumstances accelerated this process. In August 1920 a strike broke out among them, which was met by the Mines Administration with the statement that, since strikes were incompatible with the spirit of the terms of their appointment, it was compelled to ask for their resignation. Except for about fifty of the strikers, however, they were not really dismissed, for they were immediately re-engaged on the same terms, but without the privilege of exemption from dismissal. Later on, when the fall in the franc at the time of the stabilisation of the mark brought the salary of the Saar officials below the pension they could claim in Germany, a large number of them left so as to obtain a pension. The number who thus left voluntarily was 200 in 1924, 220 in 1925, and 170 in 1926. Owing to these various circumstances the number not liable to dismissal had fallen by 1 January 1929 to about 200.

To fill the vacancies created by these departures the Administration naturally had to engage new employees. Its staff of technical employees has been derived almost exclusively from local recruiting, in particular from the School of Mines at Saarbrücken. On one occasion only, immediately after the occupation of the Ruhr, when there were a large number of vacancies, it engaged about 200 foremen from the Ruhr who had continued to work there during the French occupation.

It also appointed about 15 French supervisors, who, unlike the regular German foremen, have no men under their orders. Nor do these French supervisors have any relations with the German supervisory staff, which is placed directly under the orders of the French engineers ; they merely carry out certain special supervisory duties entrusted to them by the engineers.

Finally, to replace the services formerly organised in Berlin and Bonn, and at the same time to cope with the new duties

resulting from industrial concentration, in particular with regard to supplies and sales, the French Administration had to enlarge its central services considerably. About 700 French employees were engaged for this purpose, bringing the total French staff of salaried employees, including engineers, up to about 900.

This brief survey will have shown that the composition of the staff of salaried employees is as varied as that of the manual workers is homogeneous. Since its function is to form a link between a French management and a staff of German workers, it has to include both nationalities. In a general way, the principle appears to have been to appoint only Germans to posts involving constant touch with the workers, in particular to all foremen's posts, to reserve for Frenchmen all posts of engineers responsible for the management of the inspectorates and divisions, and to divide the clerical work between the two nationalities, giving a preponderance to Frenchmen in the central offices at Saarbrücken and to Germans in the offices of the inspectorates. Thus the cashiers of the inspectorates, for instance, who pay the workers, are all Germans.

The heterogeneity of the staff of employees due to differences in nationality is reinforced by differences in legal status and professional interests. The former Prussian and Bavarian officials, who at first constituted the majority of the German employees, but whose number has gradually fallen, may be contrasted with the German employees engaged by the French Administration under new regulations. These regulations, again, differ from those applied to the French employees, for in the case of the latter allowance had to be made both for expatriation and for French use and custom, which in several points differ from those of the Saar, without always being equally advantageous. Finally, the conditions of remuneration of the various categories of employees differ so widely according as they belong to the technical or to the clerical services that there, too, there are differences in their interests.

This complexity and diversity, which are characteristic of the staff of engineers and salaried employees, are reflected in their organisations. There are six trade unions catering for the German employees engaged under the new regulations : one Social-Democratic and one Christian union of technical employees ; one Social-Democratic, one Christian, and one German-National union of clerical employees ; and finally, a special

union for former employees from the Ruhr, whom the other organisations refused to admit. Each of the first five is affiliated to the corresponding German central organisation. The staff of French employees, for its part, has formed a union of about 400 members. Only the French engineers remain outside any trade organisation.

The Organisation of Relations with the Staff

A purely French management, an entirely German staff of manual workers, and a staff of salaried employees composed of both Germans and Frenchmen — these are the human factors, so to speak, of the problem of industrial relations in the Saar, which for this reason assumes the dimensions of a problem of international administration. When it is remembered that this problem arose as early as January 1920, a few months after the signing of the Treaty of Versailles, at a time when national passions were still running high, and in an area particularly affected by the provisions of the Treaty, it is easy to understand the conclusion reached by an American after a stay in the Saar in 1922 :

> If by all such means, here in the "hot spot", this problem of industrial relationships can be solved, then certainly there is hope for every employer in the world ! [1]

To-day, ten years have passed, and the brief survey given above of the progress made during this period confirms the optimistic view expressed as early as 1922 by the American observer. Technical organisation has been substantially improved, methods of work have been rationalised, and output has risen considerably in conditions of collaboration between management and staff that are generally satisfactory. The methods by which this result has been achieved are worthy of attention.

Relations with Manual Workers

In the Saar, labour law, like other branches of the law, is governed by paragraph 23 of the Annex to section IV of Part III of the Treaty of Versailles :

> The laws and regulations in force on 11 November 1918 in the territory of the Saar Basin (except those enacted in consequence of the state of war) shall continue to apply.

[1] Whiting Williams : *Horny Hands and Hampered Elbows*, p. 186.

If, for general reasons or to bring these laws and regulations into accord with the provisions of the present Treaty, it is necessary to introduce modifications, these shall be decided on, and put into effect by the Governing Commission, after consultation with the elected representatives of the inhabitants in such a manner as the Commission may determine.

No modification may be made in the legal regime for the exploitation of the mines, provided for in paragraph 12 [1], without the French State being previously consulted, unless such modification results from a general regulation respecting labour adopted by the League of Nations.

In fixing the conditions and hours of labour for men, women and children, the Governing Commission is to take into consideration the wishes expressed by the local labour organisations, as well as the principles adopted by the League of Nations.

The first and third paragraphs of this passage are the most important from the present point of view. The first means that no German legislation subsequent to the Armistice has effect in the Saar Territory. Neither the Orders on hours of work, collective agreements, and conciliation and arbitration, nor the Works Councils Act, nor any social insurance legislation enacted since the war apply there automatically. The Governing Commission is free to decide whether and to what extent it will introduce similar regulations in the Territory. But here the third paragraph endows the French State, as owner of the mines, with a special privilege. It gives it the right to be consulted in advance on the application to the mines of provisions that would modify the conditions of exploitation, unless they are the result of a general regulation respecting labour adopted by the League of Nations. Otherwise the Governing Commission has full power over its decisions ; in practice, it takes into consideration any observations it considers reasonable. Thus the law as it affects the working of the mines cannot be modified without the management having been given the opportunity to put forward its views.

For the economic revival it had in view, the French Administration had to make sure of the collaboration of the staff, as otherwise all its technical measures would have been in vain. The staff wanted safeguards ; the Administration was able to choose between giving these the form of law or leaving them in the form of voluntary measures. It chose the second alternative.

[1] That is to say, the regime for the exploitation of the mines and their accessories and subsidiaries, as established by the German laws and regulations in force on 11 November 1918, excepting provisions adopted exclusively in view of the state of war.

To get into touch with its enormous staff of 70,000 workers, whose confidence it wished to obtain, it preferred to deal only with the trade unions, as being the natural representatives of the workers, created by themselves, rather than to see representative bodies of a new type set up by law, resulting in its (the Administration's) being placed under the control of authorities unconnected with the undertaking. By setting out the new conditions of employment in the mines in collective agreements freely concluded with the trade unions, and by loyally carrying out these agreements, it could better prove to the workers the extent of its good will and gain their confidence. Furthermore, once the agreement of the trade unions was obtained, trade union discipline would do the rest. The workers would obey the orders of their leaders and would set to work, no longer trusting to outside pressure, to which it would have been difficult for the French Administration to submit in view of its rather special position in the Saar.

It was on these grounds that the French Administration always opposed the creation of works councils in the mines and thus blocked the introduction of the system in the Territory as a whole. It was on the same grounds that it rejected the application to the mines of the Conciliation Order of 8 May 1920 of the Governing Commission, an Order inspired by the German Auxiliary Service Act of 15 December 1916 *(Hilfsdienstgesetz)*. The French State was in fact disinclined to entrust the settlement of disputes between its staff and itself to a committee presided over by a foreigner.

But at the same time as it refused any legislative intervention in the organisation of its relations with the staff, the Administration established relations with their trade union representatives that became closer and closer as time went on. At a moment when the whole German working class was benefiting by post-revolutionary legislation, it was a matter of urgency to ensure that the Saar miners, who were excluded from the scope of this legislation by the Treaty of Versailles, should work under regulations satisfying modern requirements. Negotiations were opened with the Saar secretariats of the four great German federations concerned, with the result that on 1 October 1921 new rules of employment and a collective agreement came into force. The scope of these texts is extremely wide. They provide for the uniform regulation of all the conditions of employment and the

rights and duties of the whole staff of the Saar mines.[1] The reciprocal obligations of worker and employer, the engagement and classification of the workers, hours of work, the method of fixing wages and computing the work done, the calculation and payment of wages, annual holidays with pay, penalties and the hearing of appeals against them, the reasons for terminating contracts of employment, the supply of coal to the miners at a reduced price : these are the principal subjects covered by these texts, which supplement each other.

But the provision that, from the point of view of industrial relations, involves the principle of the greatest importance is the first paragraph of the collective agreement, under which " the signatory trade unions shall be recognised as the authorised representatives of the workers ", and which adds : " The members of the signatory trade unions shall have the right to institute judicial proceedings for the execution of this agreement. " Thus the application of the agreement is guaranteed simultaneously with the recognition of the authority of the unions to negotiate with the management in all matters concerning the workers. The foundation was thus laid for constant collaboration between the Administration and the workers' organisations in social questions.

This collaboration, however, the Administration maintained should be with all four signatory unions at once, considered as joint and several representatives of the staff ; and for this reason the last section of the 1921 agreement provided that denunciation by the Administration must be notified simultaneously to the local representatives of all four signatory unions, and that denunciation by the unions must be made simultaneously by the local representatives of all four unions. The two parties to the agreement thus affirmed their intention of regarding the staff of the mines as a whole, and of making it subject to uniform and co-ordinated regulations in such a way that if modifications were proposed for one category their possible repercussions on other categories would always be taken into account.

The 1921 agreement provided that either party could give six months' notice to terminate it. As a matter of fact, the agreement has never been terminated since it came into force, but amendments have been made in it by agreement between the

[1] The leased mine of Frankenholz, the only other mining undertaking in the region, did not take part in the negotiations, but it applies without discussion the agreement concluded between the Administration and the unions.

parties on special points that experience had shown were dealt with inadequately or unsatisfactorily.[1] As these successive amendments sometimes made the legal situation somewhat obscure, the Administration drafted a new text of the agreement at the beginning of 1929 which incorporated the amendments in force. This text was communicated to the trade unions, was signed by them on 9 April, and came into force on 1 May 1929. It is thus not so much a new agreement as a codification of the original agreement and its successive amendments.

In accordance with the usual custom in Germany, the 1921 agreement dealt only with the regulation of the general conditions of employment (*Manteltarif*), leaving it to the parties themselves to fix basic wages and bonuses by a special agreement (*Lohntarif*). This being so, negotiations were opened between the Administration and the unions, which resulted in the signature of a first agreement that came into force on 1 August 1922. This agreement was concluded for a period of three months, after which it could be terminated at any time by either party with a fortnight's notice.

Substantial fluctuations in the cost of living and economic conditions have obviously led to frequent revisions of the original agreement. The discussions over these numerous revisions sometimes led to serious difficulties. Twice they resulted in disputes that affected production. In July 1925, when the depreciation of the French franc had reduced the purchasing power of wages to a very low level and the onset of the depression in the coal industry was causing great anxiety among the workers, the renewal of the wages agreement was achieved only after a dispute, which entailed first a ca' canny strike of some twenty days and then a complete stoppage of work for a week. Another dispute, which led to a slowing down of work, broke out at the beginning of 1929. The reason lay less in the rate of wages than in the method of calculation, which the management had wished to modify for the productive workers against the wishes of the trade unions.[2] After a fortnight's dispute, during which the average level of production was lowered by about one-sixth, the Administration

[1] The principal points in question are annual holidays with pay and the supply of coal to the miners.

[2] See the section on wages (p. 200).

gave up trying to impose its system, and, after an agreement on the new coefficient, normal work was resumed by the workers.

For the settlement of such disputes there is, as explained above, no official body. When agreement cannot be reached directly between the unions and the General Directorate at Saarbrücken, the matter may be referred to the Administrative Board in Paris, or to the Minister of Public Works, to whom the whole administration of the mines is subordinated. The representatives of both the unions and the management are heard, but from the judicial standpoint these proceedings cannot be regarded as a form of conciliation or arbitration. The Board or the Minister intervenes simply as a representative of the French State, the owner and exploiter of the mines. And, although the decision taken in consequence of the hearing usually represents a compromise between the original views put forward by the trade unions and by the management, it is none the less, from the judicial standpoint, a decision taken solely by the employer.

The trade unions regret this state of affairs, while recognising that it is due to the special position of the French State in the Saar. They are quite ready to admit that it would be difficult for the State to submit to a system of conciliation and arbitration like that in force in Germany, with its provision allowing the awards of the conciliation authorities in certain specified cases to be declared binding. But they consider that the Mines Administration should at least accept the system of conciliation in force for other industries in the Saar, the working of which was settled by the Governing Commission in its Order of 8 May 1920. They hold that if recourse to such procedure had been possible in January 1929, for instance, the dispute of that date could have been avoided.

It has already been indicated why the French Administration made use of its powers under the Treaty of Versailles to reject the proposal to apply the above Order to the mines it exploits. In addition, it is strongly convinced that the satisfactory results it has obtained in its relations with the workers' organisations are due to the purely voluntary character of the whole system, and that the disadvantageous effect on these relations of the intervention of outside elements would outweigh the possible advantages of an official system of conciliation.

The general collective agreement and the rules of employment both allude in several of their provisions to the workers'

committees (*Arbeiterausschüsse*), to which they entrust special duties. These committees are not a post-war innovation. They were set up by the German Mines Act (*Bergwerksgesetz*), and it was in application of this Act that the Mines Administration issued the Regulations of 15 April 1925 concerning them.

According to the provisions now in force, the workers in each subdivision of the pit (*Steigabteilung*) elect a delegate (*Sicherheitsmann*), who must satisfy certain conditions as to age and length of service. In each inspectorate the delegates thus elected by the underground workers, together with one or more delegates of the surface workers, form a workers' committee for the inspectorate. The management may appoint nominees of its own to the committee, provided that they are fewer in number than the elected members. Each committee normally meets once a quarter under the chairmanship of the director of the inspectorate.

Independently of the delegates' individual duties in safety matters [1], it is a general function of the workers' committees under section 25 of the 1925 Regulations " to work for the maintenance or restoration of satisfactory relations between the members of the staff or between the staff and the Administration ". Sections 26 and 28 add certain duties defined in more detail. For instance, the committee elects a representative to supervise the working, and check the loads, of the tubs ; it takes part in drawing up the instructions concerning the use of new machinery ; it scrutinises the rules of employment and amendments to these, and gives its opinion on their provisions before they come into force ; it lays before the management and examines jointly with it all demands, complaints, and wishes of the staff concerning the conditions of work and of employment ; it sees that the rules of employment and health and safety measures are punctually observed by the workers.

Finally, the rules of employment and the collective agreement provide for the co-operation of the workers' committee in specified cases — for instance, the designation of the posts where young workers are to be employed, the payment of these workers' wages, the promotion of the workers and their appointment to higher grades [2], the fixing of the time at which the descent is to begin for each shift, the changes to be made in the normal hours of work before and after public holidays, the

[1] See the section on safety (p. 197).
[2] See the section on wages (p. 200).

organisation of auxiliary or overtime shifts, the fixing of the rota for annual leave.

Section 28 of the Regulations concerning the workers' committees adds that they may in no case consider demands or complaints concerning individual shifts or persons.

What practical significance have these workers' committees for the relations between the employer and the staff ? Not very great, it would appear. Apart from the definite duties assigned to them, they do not seem to be very active as a rule. All the inspectorates are not of course alike in this respect. Some committees take their duties more seriously than others.[1] In a general way, however, it seems that the workers take little interest in them. The trade unions consider them antiquated and would like to have them replaced by works councils on the German model. In particular, they object that they are not purely labour institutions, since the management takes part in the appointment of the members, presides over the meetings, and fixes the agenda. Finally, the long intervals between the meetings and the prohibition against discussing individual cases prevent the committees from doing any real work for the protection of the interests of the staff.

From this point of view the workers' committees are not so important as the conciliation committees (*Tarifausschüsse*) set up on 2 October 1922 by a collective agreement between the Administration and the four trade unions concerned, in the following circumstances.

Paragraph 60 of the rules of employment provided that :

> All disputes concerning the interpretation of the rules of employment and the wage agreements shall as far as possible be settled by amicable agreement. If this method fails, judicial proceedings may be taken.

On similar lines, section 10 of the collective agreement provided that :

> Disputes concerning the application of this collective agreement shall first of all be settled between the engineer and the worker or shift concerned. If agreement is not reached, the case shall be examined

[1] In one inspectorate visited by the writer the principal engineer said that the committees were fairly regular in making suggestions for the adaptation or development of the equipment, and that these suggestions were examined with great attention by the management. At the moment it was considering a proposal for doing away with a staircase leading to the shaft which involved unnecessary fatigue for the workers.

by the divisional engineer and the member of the workers' committee representing the worker. If a settlement cannot be obtained by amicable agreement, ordinary judicial proceedings may be taken.

Finally, dealing in a general way with "all complaints or demands connected with employment", paragraph 5 of the rules of employment provided that these should be submitted to the worker's immediate superior, and, if satisfaction was not obtained, they could be laid before the next higher authority. It added :

> A decision shall not be taken until the claimant or the member of the workers' committee whom he has authorised to represent him has been given the opportunity of being heard by the authority taking the decision.

In practice it was found that this procedure was insufficient to settle many disputes and to remove numerous causes of friction between the staff and the management. Too often the foreman, jealous of his authority, roughly rejected the worker's demand instead of examining it and passing it on, and sometimes justified his refusal by referring to orders received. Too often, also, when the complaint reached the engineer, his attention was fully taken up with technical considerations, so that he paid very little attention to it, and tended merely to approve the attitude taken by the worker's immediate superior. The incensed worker then applied to the local branch of the trade union, which transmitted his demand to the district branch. From there it was referred to the central secretariat, which in turn approached the Administration at Saarbrücken. Thus, before the incident had reached the ears of the Administration, it had had time to embitter the atmosphere and become a source of discontent. In addition, the Administration was in a difficult position for satisfying the unions' demands. Being without information, all it could do was to return the case through the ordinary channels to the engineer concerned so as to obtain materials for a reply, which were only very rarely in contradiction with the decision complained of.

The effect of this lengthy procedure could only be to delay settlement and give rise to misunderstanding. It failed to abolish the causes of discontent, which, as they accumulated, tended to poison the whole atmosphere. The engineer, to whom the worker's complaint was referred by the Administration, felt annoyed with the man, and labelled him "grumbler". The

worker, for his part, remained convinced that he was in the right. In some cases he might apply to the probiviral courts in support of his case. In others he gave way, but continued to feel that he had been badly treated.

It was to overcome all these difficulties that the trade unions concluded with the Administration the agreement of 2 October 1922, which has since formed an integral part of the general collective agreement. The parties to it state in the preamble their intention of setting up " a body for the amicable settlement of disputes arising out of divergencies in the interpretation of the rules of employment and the collective agreement of 8 October 1921 and, in a general way, of all difficulties arising out of the employment that cannot be settled by a direct understanding. "

There are two grades of conciliation committees set up under this agreement : (1) in each of the twelve inspectorates there is a committee consisting of the chief engineer of the group or the principal engineer of the inspectorate as chairman, an engineer of the inspectorate appointed by the principal engineer, and three members of the workers' committee for the inspectorate elected by that committee ; (2) at the General Directorate at Saarbrücken there is a Central Committee, consisting of the Technical Director as chairman, the chief engineer directly under the Director-General, the head of the Labour Department, and one or more representatives of the unions party to the collective agreement.

The inspectorate committees deal with all disputes, concerning only the inspectorate, that arise out of the application of the rules of employment and collective agreements, except questions where a principle is involved. The Central Committee deals with all questions involving points of principle, all disputes affecting the undertaking as a whole, and all cases in which an inspectorate committee has not been able to arrive at an agreement.

In each committee the parties must try to reach an agreement. If in an inspectorate committee the representatives of the Administration and two out of the three workers' representatives accept a proposed settlement, agreement is deemed to have been reached. No appeal against the settlement may be made by the General Directorate or the trade unions, except on the ground of incompetence, when it must be lodged within eight days. Failing

agreement in the inspectorate committee, the chairman transmits the documents of the case to the chairman of the Central Committee. The latter, before laying the question before his Committee, may refer it back to the first committee with a request for reconsideration.

Agreements concluded in the Central Committee come into force as soon as the minutes of the proceedings have been signed. Failing agreement, ordinary judicial proceedings may be taken.

A very important provision of the agreement of 2 October 1922 is that which insists on the application of section 10 of the collective agreement of 1921 before allowing the parties to refer a question to the inspectorate committee. According to this provision, before any conciliation proceedings are taken before a committee, the dispute must be discussed between the engineer and the worker or shift concerned ; if no agreement is reached, it must be considered by the divisional engineer and the member of the workers' committee representing the worker. This provision ensures that the engineer will at least have had an opportunity of studying and settling the question before it is brought before the conciliation committee.

This system, which has been in operation for seven years, appears to have had excellent results in every respect.[1] It has obliged foremen and engineers to whom complaints are addressed to examine their merits carefully before rejecting them, for they know that in that case they must justify their attitude before the conciliation committees. The worker, for his part, has the moral satisfaction of knowing from experience that his complaints will not be lightly turned down, but will be given a fair examination in consultation with his authorised representatives. Finally, for the Administration, the system acts as a sort of barometer of the psychological atmosphere in the Basin. If it finds that repeated complaints are being transmitted to the Central Committee on a particular question, it can look for the cause and prevent the discontent from becoming general. In such cases it has often convened the trade unions for a joint consideration of the difficulty, and has tried to prevent further complaints by making the disputed section of the agreement or rules of employment either clearer or fuller.

[1] The trade unions state that they are satisfied with the system, which they have helped to devise. In one respect, however, they would like a change, namely, that an impartial chairman should take the place of the present chairman.

The following figures give some idea of the efficacity of the system. Since the conciliation committees were set up on 2 October 1922 and up to 1 January 1929, 5,071 complaints were brought before them. Out of this total, 300 were rejected on the ground that the committee was not competent to deal with them, 259 were settled before examination by the committee, 2,978 were settled by conciliation by the local committees, 1,534 were referred to the Central Committee, which settled 471. Four-fifths of the cases were thus arranged by mutual agreement. Of the remaining 1,063 cases, nearly two-thirds were dropped by the parties, who decided not to take ordinary judicial proceedings ; 397, on the contrary, were brought before the probiviral court. Out of this number, 201 were settled before judgment by various compromises, 72 were withdrawn, 70 were decided in favour of the Administration and 54 in favour of the workers. Thus in 75 months, out of 5,071 complaints made by the staff, only 124 were the subject of a judicial decision. This figure, which is absurdly small for a total staff of 60,000 to 70,000 workers, is not only proof of the value of the system ; it is also evidence of the spirit of mutual conciliation, fairness, and understanding that animates the parties during the negotiations.

This spirit of harmony and understanding, both parties declare, is due above all to the good faith displayed by both in carrying out the settlements reached and the faithful and exact observance of the provisions of agreements. " We have adopted the system of having everything in writing," said an official of the Administration ; " we have considered it best to formulate the rules of the game clearly, and once formulated, we keep to them. If experience shows that one of them is lacking in clearness and precision and gives rise to disputes, we try at once to arrive at an agreement with the other party on an amended text."

While the reciprocal confidence governing the relations between the Administration and the workers' organisations is in part the outcome of the conscientious observance of obligations, it seems also to be due to the direct contact that the Administration has maintained with the unions for carrying out its programme of rationalisation. Without collective negotiations in the strict sense, the Administration has adopted the rule of keeping the organisations informed whenever possible of any measures it proposes to take that may affect the workers. This

method has the advantage of enabling the Administration, if need be, to explain to the unions in advance the reasons for each measure, and to prevent troublesome misunderstandings. Once the union is acquainted with the matter, it can deal with the complaints of discontented members by explaining to them the general nature and purpose of the reform and perhaps the need of submitting to it. The attitude of the union will often be regarded by the individual worker as a sufficient guarantee of the reasonableness of the measure or the uselessness of resisting it. His acceptance will be as much due to the influence of the union as to the habit of obeying orders.

A few examples will show more clearly the importance in this respect of the contact maintained between the employer and the workers' organisations.

When the Administration decided to make long-wall working general, and therefore to increase the size of the shifts, this meant for many miners, and particularly the most skilled, a complete change in their ordinary ways of working. In pillar-and-stall working, where they worked with a few assistants as if in a small workshop, they could get the full advantage of their skill and earn wages almost exactly proportionate to their merits. In long-wall working, on the contrary, where gangs of 150 to 200 men, divided into three shifts, are employed, the members of which do not all know each other, the worker is reduced to a mere unit whose wages, calculated according to the number of shifts worked, depend on the collective work done every month by the group to which he belongs. His personal output is thus reduced by the rhythm of the machine — the cutter preceding him or the conveyor following him — to the level of the average output of his group. Moreover, he is no longer free to settle the speed and organisation of his work as he pleases. In a large shift engaged on flow work and equipped with up-to-date machinery, no interruption can be allowed while the machine is working. The work must begin and end at the times fixed for the whole shift. Breaks for meals must be taken collectively, sometimes at the face itself, to allow of the simultaneous and rapid resumption of work. And if by chance the machine stops, if a train of tubs is behind time in collecting the coal, the worker is obliged, whatever his particular trade, to carry out any auxiliary work asked of him, since the mine cannot tolerate the prolonged inactivity of so large a shift. Formerly a hewer could

not have been asked to shovel coal. In other words, long-wall working requires more pliancy on the part of the staff.

It is obvious that such a reform may well meet with vigorous individual opposition. Perhaps this has been less so in the Saar than elsewhere owing to the spirit of collective discipline already described. But there seems to be no doubt that the favourable attitude of the unions to the reform had its effect on the staff. The trade union leaders were informed of the intentions of the Administration and decided to support them. As they were aware that the same reform had been carried out in other German coalfields, in particular the Ruhr, and as they also approved in principle of that equalisation of wages and strengthening of the collective spirit which are produced by large shifts, they helped by their attitude to convince the recalcitrant.

Even more significant was the maintenance of relations with the unions during the large-scale dismissals effected by the Administration at the beginning of 1928.[1] No doubt the unions had already been prepared for a possible reduction of staff by the amount of short time : 22 days of unemployment in 1927, 3 days in January and 4 days in February 1928. But it is likely that the measure would have met with more opposition if the Administration had not taken care to inform the workers' organisations of the main lines of its programme, so giving them an opportunity of considering it and suggesting certain ways of alleviating its effects. In reply to their comments, it promised that its representatives on the Insurance Fund would, wherever possible, support applications for pensions for dismissed miners. It also agreed to reconsider later any specially deserving individual cases referred to it. After these preliminaries the Administration was able to carry out its proposed scheme without fearing a collective dispute. The unions confined their activities to getting pensions for as many workers as possible and obtaining the re-engagement of some of the workers who were hardest hit by dismissal. For the rest, they tried to find openings for the dismissed miners in other branches of industry, with most success in public works, railways, and building.

Owing to the preliminary negotiations between the Administration and the unions, more than 3,800 workers were dismissed at a stroke, not only without leading to a dispute, but

[1] See above, p. 162.

without seriously affecting the labour market of the Saar.[1] The percentage unemployed for the whole Territory, which was 2.29 in January 1928 and 2.12 in February, rose only to 2.22 in March, immediately after the dismissals, fell again at once to 2.01 in April, and remained between 1 and 2 per cent, until October.[2]

Its relations with the trade unions were also very useful to the Administration when, as a means of systematising the raising and lowering of the workers in the pits according to the subdivision in which they worked[3], it devised the scheme of assigning a normal recruiting zone to each pit and of transferring the men accordingly from one pit to another. Here, again, individual opposition was to be feared, which, if it crystallised out, might have created a general atmosphere of discontent. One need merely imagine how much a man who has worked for years in the same pit, so that he is accustomed to the quality of its coal, and knows its advantages and risks, may dislike being transferred to another pit quite new to him, with the possible fear of no longer earning as high a wage. Such feelings of apprehension and distrust were much reduced in the Saar by the attitude of the unions, to which the Administration had communicated its scheme in advance, and which had understood its advantages while proposing certain changes on points of detail, suggested to them by their thorough knowledge of the topographical conditions.[4]

Without this careful working out of the details of the scheme in consultation with the unions, it is hardly likely that 7,000 individual transfers could have been made within a few months.

Though the confidence of the workers in their organisations, and their knowledge of the close relations between these and the

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[1] It should be noted, however, that the 2,000 dismissed workers who were resident outside the Saar Territory were not covered by the employment statistics for the Territory, so that these statistics give only an incomplete idea of the unemployment produced by the reduction of the staff of the mines.

[2] The increase in unemployment at the end of the year (2.38 per cent. in November, 4.07 per cent. in December) is attributed by the Labour Department of the Territory partly to the renewed unemployment of the miners dismissed at the beginning of the year, for whom only temporary employment had been found during the season in building or public works. (*Jahresbericht der Abteilungen Volkswohlfahrt, Landwirtschaft und Forsten, Arbeitsamt und Sozialversicherung der Regierungskommission des Saargebietes*, 1928, p. 136.)

[3] See above, p. 164.

[4] They pointed out, for instance, that certain places, apparently closer to one pit than another, were separated from it by undulations of the ground, making the journey more tiring for a man walking or cycling.

Administration, play an important part in the good will with which they have accepted the new regime and the reforms in the methods of working, and made the necessary effort to increase output, some importance must also be attached to the direct contact in the mines between the engineers and the staff. It has already been stated that before complaining to a conciliation committee the worker must apply to the divisional engineer. Furthermore, the regulations of the French Administration, unlike the earlier ones, require every ordinary engineer to go down the mine five times a week, and every divisional engineer twice. In this way each workplace is visited on an average twice a month. It seems unnecessary to stress the moral as well as technical advantages of this direct contact during work between miner and engineer. It gives the former an opportunity of voicing certain minor complaints that he often would not think of formulating in an official way, though in the long run they tend to affect his interest in his work.

The extension of the system of large shifts has also established closer relations between the foremen and the workers. When pillar-and-stall working was the rule, the foreman had to go from one workplace to another to supervise his men ; he got tired, lost time on journeys, and could spend only a few moments with each group. Being always in a hurry, he did not get to know his men and tended to answer their questions brusquely. When it is added that his official position tended to make him keep his distance from the worker, it is intelligible that the foreman was too often not so much a factor in, as an obstacle to, good industrial relations.

To-day the situation has changed considerably. The regulations oblige the foreman to go down the mine with his gang. The men all work in a single group, so that he has them under his eye all the time, can guide and direct their work, explain new methods to them, and with the help of the engineer solve small practical difficulties as they arise. Being closer to the workers and in direct touch with them his attitude has changed with his functions ; he has become the collaborator as much as the supervisor of the men in his gang.

The co-ordination of relations with the unions, the collection of up-to-date statistical and other information on labour ques-

tions, the preparation of solutions for problems relating to labour, the regular transmission of instructions to the directors of the inspectorates on the decisions taken or the agreements concluded by the Administration in matters of labour policy, and the supervision of the faithful carrying out of these instructions are in the hands of a special Department, the Labour Department, attached to the Technical Directorate at Saarbrücken.

This Department, which is composed of seven persons, including the chief and a German assistant chief, formerly a Prussian administrative official, is not directly responsible for the administration of the staff. Paragraph 7 of the rules of employment provides that engagements are made according to need by the principal engineers or their representatives, that is to say, by the chiefs of the inspectorates. These officials are also responsible for keeping the files of the workers up to date, recording among other things their name, address, family responsibilities, method of travelling to their work, previous employment, promotions, punishments, transfers, holidays, sickness or injuries, and the date of any departure and re-engagement.

The Labour Department, therefore, does not deal in a general way with individual cases ; but, in virtue of the decisions taken by the General Directorate with regard to the programme of production, it may fix certain limits for the engagement of new workers, or even forbid it entirely. It was explained above that, as early as the beginning of 1927, the Administration, before proceeding to any dismissals, tried to reduce the staff by stopping the engagement of new workers.[1] Even now the engagement of workers over 18 years of age is allowed only with the approval of the Labour Department, given in each individual case on the basis of the report submitted by the principal engineer. Up to 7 May 1929, a maximum staff was also assigned to each division. To-day this limit has been replaced by instructions as to the average daily output that each division is required to attain, the division being left free to fix the size of its staff accordingly.[2] For purposes of control, however, it must once a month send in

[1] See above, p. 162.

[2] The average production thus asked of each division is fixed at meetings held by the Director-General with the chiefs concerned. It is based on the estimates of possible sales made by the Commercial Department and the estimates of possible production made by the Technical Directorate.

a statement of its staff to the Labour Department, together with certain individual items of information. Among other uses this statement enables the Department to pursue its policy of rationalising recruiting by transferring the workers from one pit to another when they are not resident in the normal zone of the pit where they work.

There is one case in which decisions relating to individual workers must always be referred to the Labour Department at Saarbrücken. This is the case of dismissal. When a principal engineer dismisses a worker, he must notify the Labour Department, sending a statement of the worker's name, address, occupation at the time of dismissal, length of service, technical skill, and family responsibilities, the date of his offence, the date of his interview with the divisional engineer, the section of the regulations justifying dismissal, a summary of the enquiry, and any previous penalties for offences of the same kind during the past two years. On the basis of this very detailed information the Director-General himself, after consulting the principal engineer and the chief engineer, and on the recommendation of the Technical Director, takes his decision concerning the period during which the miner in question may not be re-engaged.

These exceptional precautions in the case of dismissal are justified by the extreme seriousness of this penalty in a region where there is, practically speaking, no other mining undertaking and dismissal may lead to prolonged unemployment, a change of occupation, and even expatriation. For all smaller penalties the case is referred to the Labour Department only at the worker's request.

Relations with Salaried Employees

The relations of the Administration with its salaried employees differ very much from those with the workers. Collective bargaining in the true sense cannot be said to take place between the employees' unions and the Administration. The regulations for each category of employees are simply transmitted for consideration to the organisations concerned and discussed at meetings with them. Thus, the regulations for the German employees and the amendments to these are examined in common with the representatives of the six unions concerned, who inform the Administration of their comments. But there are no real negotia-

tions involved in this collective consideration of the regulations, nor does it aim at reaching an agreement between the parties. The Administration takes the observations made into account or not, as it pleases.

One of the points put forward by the Administration in support of this difference of treatment for workers and employees is the lack of homogeneity in the staff of employees. For some of them it has to take German usage into account, for others French usage and the special conditions of expatriation, and it considers that it would be difficult to arrive at a sufficiently flexible and harmonious result by way of collective agreements. It also refers to the lack of understanding that often prevails, even between the various German organisations of employees. It considers that these conditions would too often paralyse the progress of negotiations.

Finally, as regards salaries, for instance, the Administration thinks it superfluous to enter into a discussion with the employees when it has already reached an agreement with the workers, since in practice the coefficient of variation must always be the same for both categories. Any attempt to grant the employees a higher coefficient than the workers would in fact lead to the immediate reopening of negotiations by the latter. Furthermore, the Administration has never contemplated the admission of the trade union representatives of the employees to the same table as those of the workers, since it regards their interests as clearly different, and it would be impossible for it to grant certain privileges to the employees to the exclusion of the workers, and *vice versa*.

The staff of engineers and salaried employees also differs from that of manual workers in being immediately subordinate to the General Directorate at Saarbrücken. It is administered by a special Department, the Staff Department, under the Director-General. This Department is responsible for engagements and dismissals, keeps the personal files up to date, and proposes to the Director-General any bonuses to be granted at the end of the year, or penalties to be imposed. It also collects up-to-date information on problems relating to conditions of employment, prepares solutions for them, and is responsible for relations with the unions.

Technical Education

One of the factors in the success of the methods of rationalisation in the Saar has certainly been the high standard of the foremen and similar grades. Reference has already been made to the important part they played in applying the new methods. While the system of large shifts has to a certain extent lightened their work, as they no longer need to make long and fatiguing journeys to visit the different members of their gang, but can have them all under their eye all the time, yet it demands of them greater technical capacity, more highly developed organising power, and more mechanical knowledge.

It is its institution for technical education that provides the Administration with the necessary staff.

Under the former German mining legislation, workers under 18 years of age have to attend a continuation school (*Werkschule*), and the employer must give them every facility for this purpose. Under the present Mines Administration these schools are organised by the General Education Department. Two courses, held in alternate weeks, are run simultaneously so as to allow the young workers to attend regularly. The workers under 18 years of age are divided into two groups, A and B. During one week Group A works the morning shift and Group B the afternoon shift ; during the next week the position is reversed. As the courses are held in the afternoon, the workers in each group are thus able to attend them alternately. A special list is made of each group, copies being sent to the Education Department. If a boy does not attend the course, the rules of employment provide for punishments, which, if the offence is repeated, may even go so far as dismissal.

In view of the type of pupil and the curriculum, these continuation schools must be considered as institutions for the continuation of general education rather than for technical education. This is also true of the higher-grade continuation courses (*Werkschuloberklasse*), which are intended for the best pupils in the continuation schools. The teachers in the latter have instructions to pick out the pupils they consider the cleverest and encourage them to attend the higher-grade courses instead. From the point of view of the teaching given, therefore, the

higher-grade continuation course is not so much a sequel to the continuation school as a superior version of it ; but if a youth attends it this is an indication that he hopes to rise above the class of wage earner. Although the subjects taught in these higher-grade continuation courses are still within the range of general education, they may be described as pre-vocational, for it is from among their pupils that the candidates for the technical schools are subsequently selected, and their curriculum is intended to prepare for the entrance examination to these schools. The pupils, while continuing to work underground as apprentices or workers, already consider themselves, unlike the pupils of the continuation schools, as future salaried employees ; so much so, indeed, that they continue to work during strikes without arousing any protest from their comrades.

There are four higher-grade continuation courses in the Basin. There are three classes a week : two of two hours, and a third of six hours, which takes the place of an ordinary shift and for which the pupils are paid their normal wages by the Administration. About 300 pupils attend these courses, the normal length of which is two years.

Technical education, properly so called, begins only with the preparatory mining schools (*Bergvorschule*), the entrance examination for which is based on the general subjects forming the curriculum of the higher-grade continuation courses. These preparatory mining schools, too, are four in number, and they share premises with the higher-grade courses. They are not, however, under the General Education Department, but under the Technical Education Department.

In addition to passing the entrance examination, a worker who wishes to be admitted to a preparatory mining school must be not less than 18 and not more than 23 years of age, and must have worked underground for at least two years. The number admitted is fixed once a year, after the examination, with reference both to the probable needs of the mines and to the standard of the results. In July 1929, 47 candidates were admitted out of 70. Nearly all came on from the higher-grade continuation courses and were sons of miners or mine foremen. The total number of pupils is at present about 300. The period of study is three years. Instruction is given three times a week, from 8 a.m. to noon. During the whole period of attending these

courses the pupils continue to work underground, on the afternoon shift (2 p.m. to 9.30 p.m.) [1], but they are already known as *Bergvorschüler* in their division, and wherever possible they are used on special jobs, such as borings and test workings. In the schools they are taught scientific subjects in preparation for the technical instruction.

It is at the School of Mines (*Bergschule*) that candidates for the post of foreman are finally trained. The entrance examination is open to all, but, in fact, nearly all the pupils come from the preparatory schools described above.

A candidate for admission to the School of Mines must be from 18 to 26 years old, and have attained the grade of skilled worker (*Vollhauer* or *gelernter Handwerker*), which is normally not reached until after six years, or in exceptional cases five years, of work. In addition he must pass an entrance examination based on the curriculum of the preparatory mining schools, and undergo a special medical examination by the doctors of the Administration.[2]

The instruction in the School of Mines is divided into two sections, one for mining, the other for mechanical engineering, and the pupils are divided between these two according to their previous practical training. At the entrance examination in July 1929, 20 candidates out of 39 were admitted to the mining section and 7 out of 26 to the engineering section. [3]

When the candidates have been admitted to the School of Mines they are no longer under the authority of the division in which they work, and their pay becomes chargeable to the technical education budget.

The period of study is two years. The pupil is first sent to a French mine for a probationary period of six weeks ; then he returns to the Saar for a further probationary period of six weeks in his own division, where he is employed on special work on

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[1] This obviously means a considerable strain on the pupils for at least three years. But the Administration believes that the consequent process of natural selection (about 7 or 8 pupils give up at the end of the first year, and 3 or 4 at the end of the second) has good results on the whole.

[2] Like all miners, the candidate will already have had a general medical examination by the doctors of the Insurance Fund (*Knappschaft*) when he was first engaged.

[3] The lower proportion admitted to the engineering section is due to the larger number of candidates taking the course for the second time and to the greater attractiveness of this career.

which he draws up reports. On 15 October he enters the School of Mines at Saarbrücken, where the hours of attendance are 7½ a day (8 a.m. to noon, and 2.30 p.m. to 6 p.m.). During this period of study most of the pupils continue to live at home in their own village in the Basin and travel daily to Saarbrücken ; the travelling facilities are such that one-third of them can even go home for lunch. The School makes no provision for board or lodging.

The instruction naturally includes a large number of visits to industrial undertakings and mines. Every attempt is made to show the pupils plants where any new devices have been installed, so as to prepare them for their future duty as foremen of introducing new methods. Among the theoretical subjects, special reference may be made to the course in legislation, covering the mining laws and police regulations for the mines, for it is the foreman who, under German legislation, may in certain cases be held responsible for accidents.

At the end of a year the pupil takes an intermediate examination [1], after which the courses are interrupted for three months, during which he has two further probationary periods of six weeks each, one in France, the other in the Basin, where this time he has a supervisory post. At the end of the second year of theoretical work, he takes the final examination, conducted by a committee of engineers. If he passes [2], he is given four or five days' holiday with pay, and then goes back to his own division, where he is graded with the supervisory staff on a day-to-day basis pending a vacancy as foreman. [3]

An interesting innovation introduced by the French Administration has been the payment in full of pupils in the School of Mines during the whole period of study. [4] Except during the probationary periods in France and the Saar, when they are paid at normal rates by the mines where they are working, the pupils receive during the first year of study the full wage of a skilled worker, and during the second year the pay fixed for the

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[1] The number rejected is very small : none in 1929, only one in 1928.

[2] Only one candidate was rejected in 1929.

[3] As the number admitted to the School is fixed according to probable needs, the waiting period is never very long. It was a little longer than usual, however, at the time of the recent reductions in staff. In 1929 the first 4 candidates who passed the final examination in July were appointed in Novermber.

[4] Formerly the pupils were merely given an allowance according to their need, to enable them to complete their studies.

supervisory staff. They thus earn as much as or more than they were earning in the pit. In addition, all their travelling expenses are reimbursed in full. This generous measure, which costs the Administration about 500,000 francs a year, relieves the pupils of all anxiety as to ways and means. They are no longer driven, as they used to be, to earn a living by working a shift on alternate days or for half the year, to the detriment of the continuity of their studies.

Finally, the Administration does not consider that its interest in the technical training of a pupil necessarily stops when he leaves the School of Mines. Twice it has encouraged the pupil who came out top in the examination to continue his studies. One of the two refused for family reasons ; the other was sent by the Administration to the Electro-Technical Institute at Nancy, where his fees were paid, and he was afterwards taken on as an electrical engineer.

Before concluding this section, reference should at least be made to the Higher Technical College in the Saar, which is under the auspices of the Mines Administration and is largely subsidised by it. The scope of this institution, however, goes so far beyond mines and mining that it would be out of place to describe it here.

Hygiene and Safety

The Mines Administration has no special department for safety. The Technical Directorate considers that this is a matter that should engage the constant attention of its inspectors in the interests both of production and of the staff. It considers, furthermore, that from the technical point of view safety has become even more imperative since the introduction of rationalisation measures, and, in particular, since the formation of large shifts. The point is that, with the larger productive unit, any accident causing a temporary stoppage of work somewhere must have more serious effects on output than under the old system.

While the essence of technical rationalisation is to make the best possible use of time by improving the equipment and organising the work, one of its first conditions is an improvement in safety, without which continuity of production cannot be ensured. It is not surprising in these conditions that the management has devoted every attention to improving the

technical safety devices. This is not the place to describe them in detail, but a few examples may be given.[1]

The police regulations for the mines leave it to the management of a mine to decide whether timbering is necessary, and, if so, to adapt it to local conditions ; the Mines Administration has, however, relinquished its discretionary powers in the matter, and has prescribed that timbering shall be carried out everywhere and under uniform rules.

Measures have also been taken for increased and more efficient ventilation of the mines. Here, too, the reduction in the number of workplaces has allowed of a better distribution of the ventilation. The quantity of air per worker in the shift consuming the largest amount rose from 132 litres per second in 1920 to 154 in 1929 (first ten months) in the eastern group, and from 127 to 185 in the central group. It fell, however, from 150 to 136 in the western group.

The use of explosives is entrusted to trained shot-firers only, who are carefully selected and instructed. In long-wall working shots are fired, whenever possible, in the intervals between the regular shifts, when the workplaces are empty, thus reducing both risk and loss of time. The amount of the charge has been strictly limited. Finally, wherever the use of explosives was likely to be dangerous, it has been replaced by mechanical cutting. The consumption of explosives per ton of screened coal extracted for all the State mines was thus reduced from 66 grammes in 1920 to 51 grammes in 1929 (first ten months).

To solve the problem of dust underground, experiments have been in progress since 1926, with the result that the general system of watering hitherto in force under the regulations has been replaced by a more or less general system of stone-dusting. This process incidentally whitens the walls, and so has the additional advantage of much improving the lighting of the haulage ways. In this field the engineers are also trying to improve the lighting at and near the face by installing small turbines for electric light, worked by compressed air. Finally, the miners' oil lamps have been replaced by electric lamps wherever compatible with the police regulations in force. The number of oil lamps fell from 53,416 at the beginning of 1920

[1] These particulars are taken from the document of the Technical Directorate previously mentioned (*Notes sur le développement technique des mines de la Sarre*, November 1928) ; at the writer's request, the Directorate has revised the information and brought it up to 31 October 1929.

to 19,200 on 1 October 1929, while that of electric lamps rose from 170 to 34,965.

Some idea of the effect of these measures on the degree of safety in the Saar mines during the last few years is given by the following table, showing for all the mines the number of fatal accidents since 1908 : (*a*) per thousand workers, taking the average staff above and below ground, (*b*) per million man-days above and below ground. [1]

FATAL ACCIDENTS IN THE SAAR MINES, 1908-1929

Year	Number of fatal accidents	
	Per 1,000 workers	Per 1,000,000 man-days
1908	1.323	4.790
1909	1.257	4.416
1910	0.965	3.398
1911	1.129	3.915
1912	1.335	4.399
1913	1.049	3.397
1914	1.099	3.601
1915	1.674	5.187
1916	1.595	4.967
1917	2.470	7.649
1918	2.157	6.963
1919	1.241	4.520
1920	1.070	3.904
1921	0.804	3.178
1922	0.833	3.268
1923	{ 0.634 [1] / 0.846 [2] }	3.219
1924	0.924	3.128
1925	0.875	3.036
1926	1.120	3.728
1927	0.854	3.001
1928	0.898	3.665
1929 [3]	0.929	—

[1] Strike of three months. [2] Estimate for whole year. [3] Six months.

Without making any comparison between these figures and those for other coalfields, it may be observed that they are fairly low. It will also be seen that the post-war figures are generally lower than the pre-war figures.

This favourable situation does not seem to be due to technical safety measures alone. The well-established mining traditions of the population have had more influence on the workers'

[1] *Bericht des Statistischen Amtes des Saargebietes*, No. 6, 1928, p. 218.

attitude to accidents than many an educational campaign. Certain inspectorates even consider that their workers are so well aware of the ordinary risks in the mines that they have had to throw away a large number of posters they had acquired, for fear of making an exaggerated impression on the men.

The good technical training of the foremen and similar grades, who, under the German legislation, may in certain cases be held responsible for accidents, is certainly also a factor in the prevention of accidents.

Finally, the system of workers' delegates (*Sicherheitsmänner*) previously described tends to make the workers themselves play a positive part in promoting safety in the mine. These workers' delegates, who are elected for five years at a time by the workers in each subdivision of the mine, must in principle visit the workplaces in their subdivision at least twice a month and inspect them from the point of view of health and safety. Their visits are made in company with a member of the supervisory staff of the Administration. It is also the duty of the workers' delegate to accompany the officials of the inspectorate when they visit his subdivision. Finally, he has the right to take part in enquiries into accidents resulting in loss of life.

The workers' delegate records any observations resulting from his visits in a special book. If he is of opinion that the life or health of his comrades is exposed to immediate danger this must at once be notified to the inspectorate by the chief foreman. Similarly, if the workers' delegate is informed at any time of circumstances involving risk to the life or health of the workers, he must at once notify his chief, preferably in writing.

The delegate is compensated in full for any loss of pay entailed by the performance of his duties.

Wages

Detailed rules concerning the methods of fixing, calculating, and paying wages are laid down in the rules of employment and the wage agreement, whose provisions and appendices have frequently been revised and supplemented. These rules display the tendency, previously described, to provide in advance for all possible cases in the utmost detail so as to prevent disputes as far as possible. It will be sufficient here to indicate the essential principles of these rules.

The first factor on which the worker's remuneration depends is his experience or age. All workers over 16 years of age employed underground, whether paid by the piece or the day, are divided into three categories : helpers (*Schlepper*), apprentices (*Lehrhauer*), and skilled hewers (*Vollhauer*). Normally, a young miner enters the first category at the age of 16 and remains in it for four years : two years as a second-class helper, and two years as a first-class helper. He then becomes an apprentice for two years, after which he may be raised to the grade of skilled hewer by the divisional engineer. Passage from one category to another is practically automatic. Refusal by the engineer to make a worker an apprentice at the normal date must be preceded by consultation of the workers' committee. Refusal to make him a skilled hewer entitles the workers' committee to ask for a test, to be carried out under the supervision of a skilled hewer, after which the engineer consults the committee and takes his decision.

The remuneration of these various categories is fixed in tenths of the skilled hewer's wage. An apprentice receives nine-tenths of this wage in his second year and eight-tenths in his first year ; a first-class helper receives seven-tenths, and a second-class helper six-tenths.

There is a similar classification, based on age, for surface workers paid by the day. Those over 22 years of age receive the full wage for their class ; those of 21 years receive nine-tenths, those of 20 years eight-tenths, those of 18 and 19 years seven-tenths, and those of 16 and 17 years six-tenths.

Technical skill, so far as it is independent of experience and age, affects the wages only of those underground and surface workers who are paid by the day. Both groups are divided into wage classes according to the nature of the work done, but the difference between the various classes has steadily lessened during the last few years. The first wage agreement of 19 August 1922 divided underground workers paid by the day into four classes and surface workers into five, with a maximum difference in wages of one-third of the highest rate ; the agreement of 11 November 1929 divides each group into only three classes, and the difference between the highest and lowest rates in each group is now only one-tenth.

For underground workers on piece rates the tendency to equalise wages is even stronger. In point of fact, all the men

in one gang, that is to say, all who work in successive shifts at the same workplace, receive the same wage per shift worked, so far as their grade (skilled hewer, apprentice, etc.) entitles them to the same number of tenths of the basic wage. The nature of the work they do in the shift does not affect their remuneration. Even the overman in charge of the shift is placed on the same footing as his comrades. To determine the individual wages, the collective earnings of the gang are simply divided between the members at the end of the month in proportion to the number of shifts worked by each and the number of tenths of the basic wage assigned to his grade.

It will easily be understood that this system, under which all the members of the group have the same interest in their collective output, has had no little effect in strengthening the spirit of solidarity among the men. It has also helped to make the organisation of the work much more flexible, for the wage becomes independent of the exact position of the individual worker in the chain and any readjustments needed can be more easily effected. In large shifts, where division of labour has been carried very far [1], it would have been very difficult to

[1] By way of illustration the following table, showing the detailed composition of a gang of 146 men, may be given :

DISTRIBUTION OF WORKERS AT THE FACE

Category	Shift			
	Morning	Afternoon	Night	Fourth
Overmen	1	1	1	—
Hewers	3	3	3	2 [1]
Borers and men preparing for blasting	3	2	3	—
Fillers	17	17	—	—
Timbermen at the face	5	5	4	—
Coal conveyormen	1	1	—	—
Coal handlers at level	3	3	—	—
Waste tippers at level	3	3	—	—
Waste conveyormen and conveyor supervisors	4	4	—	—
Gob packers	9	9	—	—
Timber leaders	1	1	1	—
Roadmen preparing upper haulage road	3	2	2	—
Roadmen preparing lower haulage road	5	5	4	—
Conveyor flitters	—	—	8	—
Pipemen and strappers	—	—	4	—
Total (= 146)	58	56	30	2

[1] Special hours spent underground : 6.30 a.m. to 12.30 p.m.; 6.30 p.m. to 12.30 a.m.

organise the work if, merely on account of differences in wages, a worker could not have been asked at any time to change his position in the chain to ensure the continuity of the work.

Thus for the piece worker the principal factor in his wage is the collective output of the gang. But the relation between the two amounts is not absolute. His wage consists in fact of two parts : a variable part directly proportional to the output, and a fixed part.

The wage agreement provides that the piece rates must be fixed in the various pits in such a way that, in view of the particular conditions of the work, the skilled hewers in a gang with normal output may be able to earn on an average 10 francs per working day, this average being calculated over the month. The worker's basic wage is then obtained at the end of the month by multiplying his average piece-rate earnings by 2 and adding to the product a fixed sum of 10 francs per working day. The formula for the basic daily wage is therefore $2p + 10$, p representing the worker's average daily piece-rate earnings for the month.

Thus, of the piece worker's basic wage only about two-thirds depends on his actual output or that of his shift. The fixed part of 10 francs introduces an element of equality and stability : for it means that when his piece-rate earnings are lower or higher than 10 francs, this reduction or increase in output, as the case may be, does not have its full effect on his wages. It thus helps to even out the fluctuations in the worker's piece-rate earnings. At the same time it tends to reduce the difference between the remuneration of the least and the most productive workers. It is to the advantage of the former and to the disadvantage of the latter, but is a guarantee of stability for all.

The trade unions have always strongly insisted on the maintenance of this system. They argue that piece-rate earnings may be affected by many circumstances entirely foreign to the worker's effort or skill, such as the nature of the seam, the quality of the coal, or inequality in the determination of piece rates. This being so, they wish to prevent the possibility of too great differences in remuneration as between one shift or pit and another, due perhaps less to differences in deserts than to good or bad luck. Finally, they regard the fixed part of the wage as a means of preventing the wages of piece workers from differing too much from those of day workers.

It was the Administration's attempt to abolish the fixed part and make the piece workers' wages depend solely on output that was the principal cause of the dispute of January 1929. Considering that in the circumstances an increase in output was the only possible justification for a rise in wages, the management had hoped by this method to give the sole but full benefit of any such increase to the workers to whom it was due. When the unions objected, it tried to introduce the system without their consent, in the expectation that the underground workers, the great majority of whom were earning more than 10 francs on piece rates, would gladly accept the abolition of the fixed part.

But trade union discipline and the solidarity of the workers were stronger. The piece workers, at the order of their organisations, slowed down their work, and after a fortnight's dispute the Administration agreed to return to the system of the fixed part. The tendency in favour of equalising and stabilising wages had gained the day ; and it is characteristic that the whole burden of the struggle was borne by the very men who would have benefited directly by the system of the Administration.

Another and even more effective provision protects the piece worker against the effects of reductions in output for which he is not to blame. According to section 24 of the rules of employment :

> When a gang of workers on pieces rates earns wages lower than the minimum fixed in the wage agreement, this being the result of unforeseen difficulties and not of ill will on the part of the workers or of insufficient output through their fault, the divisional engineer shall grant the gang an indemnity bringing the wage earned up to the minimum at least. The divisional engineer may not refuse this indemnity without having given the workers' delegate for the subdivision concerned an opportunity to submit his observations.

The minimum piece-rate earnings to which this section refers are at present fixed at 9 francs, so that the minimum basic wage of a piece worker is $2 \times 9 + 10 = 28$ francs, or only 7 per cent. below the average basic wage fixed by the agreement, namely, $2 \times 10 + 10 = 30$ francs. Below this the wage cannot be reduced unless the worker is himself to blame.

There is no space here to discuss in detail the various bonuses and supplements that may be added to the basic wages of both

piece workers and day workers. The appendices to the wage agreement define their practical application in great detail. In a general way they are evidence of the desire to establish a relation between remuneration and output wherever it appears that the latter depends on the worker's efforts and that the results of these efforts can be measured.

In conclusion, it may be added that these bonuses and supplements, and, indeed, all parts of the wage, are laid down in the agreement only in the form of basic figures, which disregard fluctuations in the cost of living and changes in economic conditions. The adjustment of wages to these circumstances is effected by means of a coefficient, which is applied to the worker's aggregate wage, the variations in the coefficient being fixed by mutual agreement whenever occasion arises.

Given these principles for the determination of wages, we have next to see how they work out in practice.

We shall take first the variations in the purchasing power of the average wage of all workers, both underground and surface. There are three cost-of-living index numbers available for measuring this purchasing power. One, known as the Herbig index [1], has been compiled regularly since 1920 by the Mines Administration on the basis of the normal consumption of a Saar miner's family of five persons. The trade unions have never accepted it, but it has the advantage of being the only index covering the whole post-war period. The second index, calculated from February 1925 onwards, which is that preferred by the unions, is based on a similar budget to that used for the German Federal index and on the retail prices recorded for the town of Saarbrücken ; it is compiled by a committee consisting of three worker members, one employer member, and one representative of the mines. The Mines Administration's objection to it is that it is purely urban and does not reflect the situation in the districts where the miners live. In this respect it prefers the index calculated by the Governing Commission, which refers to the whole Territory. But it considers its own index as

[1] So called because it is based on a study of the household budgets of 92 Saar miners' families with five persons in each family, which was published by Herbig in *Glückauf* in 1912.

more individual and better adjusted to the special conditions of life of the miner.

However this may be, the comparison of the three index numbers in the following table gives a fairly accurate idea of the fluctuations in the purchasing power of wages since 1920.

INDEX NUMBERS OF THE COST OF LIVING, MONEY WAGES, AND REAL WAGES FOR ALL WORKERS (UNDERGROUND AND SURFACE TOGETHER), 1920-1929

Period	Index numbers						
	Cost of living			Money wages	Real wages, based on the cost-of-living index for:		
	Saar	Saar-brücken	Mines		Saar	Saar-brücken	Mines
1920 [1]	—	—	360	380	—	—	106
1921	—	—	249	319	—	—	124
1922	—	—	181	266	—	—	147
1923	—	—	305	333	—	—	109
1924	—	—	403	411	—	—	102
1925 :							
1st qr.	—	415	427	431	—	104	101
2nd ,,	408	416	424	431	107	104	102
3rd ,,	441	450	453	447	101	99	99
4th ,,	456	468	458	465	102	99	102
1926 :							
1st qr.	491	497	491	485	99	98	99
2nd ,,	536	547	527	519	97	95	98
3rd ,,	637	642	629	586	92	91	93
4th ,,	662	673	647	640	97	95	99
1927 :							
1st qr.	613	628	600	643	105	102	107
2nd ,,	596	605	579	607	102	100	105
3rd ,,	584	592	571	602	103	102	105
4th ,,	582	588	560	602	103	102	108
1928 :							
1st qr.	586	592	562	602	103	102	107
2nd ,,	595	606	575	602	101	99	105
3rd ,,	604	621	585	602	100	97	103
4th ,,	613	626	587	606	99	97	103
1929 :							
1st qr.	620	634	598	621	100	95	104
2nd ,,	622	643	599	643	103	100	107
3rd ,,	618	635	591	655	106	103	110

[1] Last three quarters.

A study of this table shows three distinct periods in the movement of real wages during the last ten years. During the first period the payment of the miners' wages in French francs, at a time when the mark was still current in the Saar and was rapidly depreciating, tended to increase the purchasing power of their wages considerably. At that time the miner was in a privileged position. The ordinary lag between the depreciation of the currency and the rise in retail prices meant for him a fall in the cost of living, since he was paid in a more stable currency. This fall was substantial from 1920 to 1922, and the miner's real wages rose nearly 50 per cent. above the pre-war level.

The situation was reversed from 1923 onwards, when the French franc was introduced as the unit of currency in the whole of the Saar Territory and the cost of living rose rapidly. At the same time the exceptional advantages enjoyed by the miner disappeared. The purchasing power of wages, however, remained above the pre-war level until the middle of 1925. By then the progressive fall in the French franc and the fact that wages did not rise as fast as prices had an increasing effect on real wages, which fell during the third quarter of the year to 7 or 9 per cent. below the pre-war level. With the fourth quarter, however, purchasing power rose again, and in 1927 a period of stability began during which — according to two of the indexes at least — real wages remained at or above the pre-war level.

With this stabilisation the cost of living lost much of its importance in the discussions on the coefficient. The three successive rises granted by the Mines Administration in 1929, which raised the index number of money wages from 606 [1] at the end of 1928 to 655 in the third quarter of 1929, were justified, in its opinion, not by a rise in the cost of living, but by an increase in output and an improvement on the coal market.

In this respect it is interesting to compare the fluctuations in real wages, average output (all workers, underground and surface), and the selling price of coal from 1927 to 1929.

[1] The coefficient, which had been fixed at 1.25 immediately after the dispute of January 1929, was raised to 1.32 in April after consultation with the Administrative Board in Paris, to 1.37 on 11 November, and to 1.38 on 1 December.

INDEX NUMBERS OF REAL WAGES, AVERAGE DAILY OUTPUT (UNDERGROUND AND SURFACE WORKERS), AND PRICE OF COAL, 1927-1929

Period	Index number of real wages [1]	Price of coal [2]	Average daily output [3]
		Frs.	Kg.
1927 :			
1st quarter	105	123	837
3rd ,,	103	109	837
1928 :			
1st quarter	104	109	906
3rd ,,	100	106	920
1929 :			
1st quarter	100	110	934 [4]
3rd ,,	106	116	991

[1] Average of the three indexes given in the preceding table.
[2] Price per ton at the pithead during the second half of the first month of each quarter.
[3] Average gross output during the first month of each quarter.
[4] Figure for February, as the January figure was affected by a ca' canny strike.

This table shows that output, which continued to rise during the three years, did not begin to affect wages until there was a rise in the selling price of coal. But, partly owing to the increase in output, real wages, on the other hand, even when prices fell to their lowest in 1928, remained very close to the pre-war level. The conclusion seems to be that at present the wage policy followed in the Saar mines tends to accept the pre-war level as a minimum above which real wages rise so far as is justified by harder work and the general conditions of the market.

Any comparison of the miner's present wage with the pre-war wage must make allowance for the fact that the underground worker now earns it in 7½ hours a day instead of 8½ hours, and the surface worker in 8 hours instead of 12. Allowance must also be made for the additional advantages enjoyed by the miner to-day, which impose much heavier social charges on the undertaking than those borne before the war. They include the cost of holidays with pay and family allowances, losses on the coal sold to the workers at reduced rates, and the employer's contributions to social welfare institutions (pensions, sickness benefit, accident compensation, etc.).

The collective agreement provides that all workers of 18 years of age and over are entitled to a holiday of 3 days after one year's service, 4 days after two years, and 6 days after three

years or more. During this holiday the worker, whether paid by time or by piece rates, is entitled to the wage (including family allowances, bonuses, and supplements) that he would have earned if he had continued to work at the same place. The Mines Administration calculates that its expenditure under this head averages 0.82 franc per man per day, or 2 per cent. of the average normal wage proper (40.66 francs in October 1929).

Family allowances are an even heavier charge. The wage agreement assigns to all workers an allowance of 1.50 francs per shift in respect of each legitimate or adopted child not over school age, and a further 1.50 francs per shift in respect of the wife. Days of sickness and accident and regular holidays are included in the calculation of the shifts for which these allowances are due, subject to a maximum of 45 francs a month for the wife and 45 francs for each child. The expenditure incurred by the Administration under this head is 2.86 francs per worker per day, or about 7 per cent. of the average wage proper.

Even before the war the miners could buy coal on special terms, representing a loss to the undertaking. This privilege, which is defined in the wage agreement, has been much extended since the war, so that the loss per worker per day, reckoned in gold, is now four times what it was in 1913. It amounts to 1.51 francs, or nearly 4 per cent. of the average wage proper.

The most important social charge on the Mines Administration is that of its contributions to social welfare institutions. Unlike the other charges just considered, it is not the result of collective agreements with the workers' organisations, but is based principally on social insurance legislation, that is to say, the pre-war German legislation, completed and adapted by several Orders of the Governing Commission.

This is not the place to examine these texts and the obligations they impose on the employer. It need merely be mentioned that, apart from these statutory obligations, the employers' representatives on the Miners' Insurance Fund have agreed on several occasions to increase the contributions with a view to extending the work of the institutions or meeting the promises made to the staff. In this way, for instance, the system of sickness benefit for families (*Familienkrankenfürsorge*) was introduced, under which half the cost of medical treatment and drugs for the miner's wife or widow is met by the sickness fund. Similarly, to meet the cost of the pensions granted on a liberal

scale at the time of the reductions in staff in 1927 and 1928, the old-age insurance contribution had to be raised from 38.85 francs in November 1926 to 43.05 francs in March 1928, 48 francs in March 1929, and 57 francs in December 1929.

Taken all together, the Administration estimates that its contributions to social insurance institutions average 4.68 francs per worker per day, or 11.5 per cent. of the average wage proper. Reckoned in gold currency,. they are 60 per cent. higher than in 1913.

Summarising the above data, the Administration has made the following estimate of its social charges per worker per day compared with the pre-war figures and with the normal wage proper for all workers, both underground and surface.

AVERAGE SOCIAL CHARGES AND WAGES PER MAN AND PER DAY, 1913 AND 1929

Item	December 1929		1913
	Francs	Marks	Marks
Family allowances	2.86	0.47	—
Holidays with pay	0.82	0.13	—
Loss on coal	1.51	0.25	0.06
Social welfare	4.68	0.77	0.48
Total	9.87	1.62	0.54
Wage proper	40.66	6.69	4.80
Total	50.53	8.31	5.34

It will be seen that the coefficient of increase for the wage proper from 1913 to the end of 1929 was 1.39, while for the social charges it was 3.

A final aspect of the wage policy in the Saar Mines, of incontestable social interest, is the tendency to reduce the difference between the lowest and the highest earnings. In the account given above of the principles of wage determination, the fact was emphasised that the trade unions have always pressed for a narrowing of the range of the wage scale, and have tried to reduce any differences resulting from differences in technical specialisation and output. The results of this tendency are

clearly shown in the following table, taken from a document of the Mines Administration dated 5 January 1929, which compares the range of the wage scales in the Saar and in the Ruhr. In both cases the minimum wage of a hewer has been taken as the basis of comparison, and the basic wages of the other categories have been calculated as percentages of these figures.

RELATIVE WAGES OF VARIOUS CATEGORIES OF WORKERS IN THE RUHR AND SAAR MINES

Category	Ruhr	Saar
Hewers :		
Minimum wage	100	100
Normal wage	115	107.1
Underground workers :		
Skilled workers	100	106.4
Class I	100	102.5
Class II	91	94.6
Class III	80.2	89.3
Surface workers :		
Skilled workers	98.2	101.1
Class I	98.2	97.1
Class II	89.2	90.4
Class III	79.0	86.8

This table shows that in the Saar the wages of the lowest category are barely 19 per cent. below those of the highest, whereas the corresponding difference in the Ruhr is 31 per cent.

Since the remuneration of piece workers depends on output, it is for them in particular that there is a danger of differences in pay according to the shift or section of the Basin in which they work. The special precautions taken by the trade unions to diminish these variations were described above. The following table shows the actual distribution of the 19,799 hewers *(Hauer)* employed in the Basin in October 1929 according to the wages earned. The figures refer to the average actual earnings per shift during the month, excluding special bonuses and allowances. It may be added that the minimum wage at that period was 36.96 francs, and the normal wage 39.60 francs. [1]

[1] Minimum wage = $[(2 \times 9) + 10] \times 1.32 = 36.96$ francs.
Normal wage = $[(2 \times 10) + 10] \times 1.32 = 39.60$ francs.

DISTRIBUTION OF HEWERS BY WAGE GROUPS IN OCTOBER 1929

Wage group	Workers	
	Number	Per 1,000
Frs.		
Under 36.96 [1]	22	1
36.96—38.00	959	48
38.00—39.60 [2]	1,259	64
39.60—41.00	3,227	163
41.00—43.00	4,093	207
43.00—45.00	4,049	204
45.00—47.00	2,932	148
47.00—49.00	1,762	89
49.00—51.00	831	42
51.00 and over	665	34
Total	19,799	1,000

[1] Minimum wage.
[2] Normal wage

The first conclusion to be drawn from this table is that out of 1,000 hewers only 1 earned less than the minimum wage owing to insufficient output for which he was himself responsible, while 112 earned a wage between the minimum rate and the normal rate. The very great majority earned a wage above the latter figure ; some even earned as much as 25 per cent. more. The wages of the majority (72 per cent. of the total number), however, were between 39.60 francs and 47 francs, the maximum for this group being less than 19 per cent. greater than the minimum.

Conclusion

Having terminated our survey, we find on glancing backwards that the most striking feature of the organisation of industrial relations in the Saar Mines is its extreme simplicity. Given in a nutshell, it lies in the constant aim and endeavour of the Mines Administration to work in contact with the trade unions as far as this is possible — contact in collective negociations for fixing the conditions of work in the mines ; contact in conciliation committees for the settlement of disputes arising during employment between the management and members of the staff ; and contact for the adjustment of the details and the carrying into effect of all measures affecting the workers' conditions.

This contact between the Administration and the workers' organisations was from the outset felt to be necessary. As was said by one of the officials of the Directorate, "if there had been no trade unions in 1920, they would have had to be invented." And in fact it is hard to see how the staff of French engineers who came to work the mines could have established their authority in a day over so large a body of workers of another nationality and language, inclined by circumstances to be distrustful, unless they had been able to count on an intermediary to establish this moral contact.

The trade unions were thus called on not only to act as the spokesmen of the staff, but also to afford the Administration valuable assistance in its work of economic reconstruction. In trying to win their confidence, the management could at the same time make sure of the confidence of the workers themselves; in face of the attitude of their leaders, it would not be long before the men's fears disappeared.

Clarity, loyalty, candour : these, in the eyes of the Administration, should be the three moral factors of this confidence. Clarity was sought by the careful drafting, in close contact with the unions, of detailed regulations concerning conditions of work and the scrupulous revision of these regulations whenever practice threw doubt on their interpretation. Loyalty was demonstrated by the conscientious fulfilment of all engagements. Candour was always a principal aim of the Labour Department in its continual exchanges of opinion with the unions on all matters relating to the work and in the amicable discussions in the conciliation committees.

The trade unions, welcoming the increased prestige that their recognition by the management gave them in the eyes of their members, but aware that their authority to treat with the employer must depend on the measure of their authority over their members, undertook in return to see that those in whose name they had assumed obligations did in fact carry them out.

Thus, to a certain extent, the Mines Administration and the workers' organisations came to depend on each other for the realisation of their respective economic and social programmes. Their relations rapidly grew so extensive that they eclipsed all other institutions aiming at the same ends. The workers' committees elected under the former German legislation play only a very secondary part compared with them.

On the other hand, the Mines Administration has taken very little direct initiative in what may be called "social work". Circumstances hardly seem favourable to such action. In the early days the management had opened provision stores for the staff ; but quite apart from the very considerable financial losses incurred here when the exchange was fluctuating, it was found that as normal economic conditions were restored these shops were less needed, and the management decided that their work could be left to the workers' co-operative societies. Similarly, immediately after the war the housing shortage had forced the management to deal with this problem. When the French Administration took over the working of the mines, they already owned 2,938 dwellings. Up to 1925, 1,537 dwellings were constructed and 618 were bought, bringing the total to 5,093. The Administration then changed its policy, and instead advanced 7,000,000 francs to the Miners' Insurance Fund to enable it to grant loans to workers who wished to own a dwelling. Since then these 7,000,000 francs have been repaid, and no new loans have been granted by the Administration. By 1 January 1928 the Miners' Insurance Fund had itself advanced 30,000,000 francs for the construction of dwellings, thus rendering any further intervention by the Administration superfluous.

In addition to the houses they have built, the mines own several hostels where workers who live too far from the mine to go home every day sleep during the week. But far from encouraging this system, which it considers unsatisfactory from the social point of view, the Administration tries to limit its application, and this consideration was not foreign to its programme for rationalising recruiting. Owing to the individual transfers effected, the number of workers in the hostels had already fallen from 4,865 on 1 May 1926 to 2,991 at the end of October 1929.

With regard to the utilisation of the workers' spare time, the Administration considers that any intervention here on its part would be even less useful than the provision of shops and dwellings. In this old industrial district, where education has long been widespread[1], the population has organised its social and family life according to its own tastes and traditions ; and in the rather special circumstances prevailing in the Saar an attempt by the French Administration to intervene in this delicate sphere

[1] Out of 69,515 workers in the mines, there were only 7 illiterates in 1925, or 0.01 per cent. (*Statistique du personnel ouvrier, etc.*, p. 1.)

of private life might quite possibly come into conflict with the individual and national susceptibilities of the workers.

In other words, the management of the mines has sought to obtain the good will of the workers, not by bestowing favours and privileges, but by a system of consideration and confidence. Its aim has been less to exert a direct influence on the worker's mind than to adapt its methods to his demands and wishes. Knowing that he was devoted to his trade union, it chose the latter as the foundation for its system of industrial relations. At the same time it recommended all its engineers to try, in their daily working relations with their men, not so much to obtain formal discipline as to understand them, to make themselves understood by them, and so to create a psychological atmosphere favourable to collaboration. As a high official in the Directorate said to the writer, " the worker's mentality should be studied by the engineer in the same way as the structure of a seam, and when he thinks he has ascertained and understood it, he should adapt himself to it in the same way." This, it seems, is the true philosophy of the system that has made it possible to carry to completion in the Saar Basin an important programme of technical progress and economic reconstruction, in psychological conditions of more than common difficulty.

THE BATA BOOT AND SHOE FACTORY

Some ten years ago the town of Zlin, Bata's birthplace, which as a result of his achievements has become the seat of the largest boot and shoe factory in Europe, was an isolated village in one of the valleys linking the high plains of Moravia with the Carpathians. Its population was 3,500 in 1910 and 4,500 in 1920; it now approaches 20,000. There was nothing in its geographical surroundings to indicate that such would be the future history of this modest village. Its valley is not a highway, and the small river on whose banks it stands is not navigable. It lies half-way along the branch railway which starts from Otrokovice on the main line and ends at Vizovice at the foot of the Javornik mountains. Twenty-five miles of road separate Zlin from Přerov on the great trade route from Vienna to Prague and from Prague to Moravská Ostrava.

The environs of Zlin are entirely agricultural. Uherské Hradiště, the centre of the district, is a small administrative town of no economic importance. Westwards stretches a fertile country producing large quantities of fruit, beetroot, and cereals, and inhabited by a hard-working and well-to-do population who not so very long ago were under the domination of the great Austrian land-owning families. Eastwards lies the frontier of Slovakia, a region of wooded mountains where an over-numerous but backward population leads a hard and impecunious life. In the country round Zlin there are few or no factories. There are no industrial traditions other than those of the village handicraft workers.

This geographical and human environment has been a factor of capital importance in the development of the Zlin factory; for not only has Bata drawn all his labour from it, but he himself has always lived and worked in it. It is to this environment that he has adapted his views; and his industrial genius, unfettered by pre-conceived ideas, has endeavoured to turn it to the best

advantage. He succeeded not at once but by gradually feeling his way. Hence, to be understood, the industrial system to which he has given his name requires to be studied from its earliest beginnings in relation to the man who created it and the social environment in which it has developed.

The Development of the Undertaking

Bata is a shoemaker's son, born at Zlin in 1876. His childhood's days were spent in working in the family workshop, or in attending the market on market days to find customers for his father and to sell his wares. Fired by precocious ambition he left home while still very young. He tried his luck in Vienna with a relation, failed, and fell back upon Prague. He was now sixteen years old. In Prague he used to hawk his stock and bring back orders for his father. In 1894, at the age of eighteen, he set up on his own account at Zlin, with an initial capital of 800 florins. Soon afterwards he was giving out work to some 50 journeymen employed in his workshop or at home. Ten years later, in 1904, his business having expanded, Bata entered upon the next stage of his career. He built a factory of modest size and in this first building of his own installed his machines and his workers. But wishing at the same time to learn more about his trade he went abroad, stayed in America, where he found employment as an ordinary workman, and returned by way of Germany. Feeling himself better equipped, he decided to specialise and achieved success in the manufacture of cloth boots, which his Austro-Hungarian nationality enabled him to market throughout the Danube basin and even in the Orient. Thus when the war broke out he had imperceptibly entered upon a new phase. He employed 2,000 workmen, a large number for those days, and had acquired a considerable reputation and a large body of customers extending over the whole of Eastern Europe and into Asia. He was already on the threshold of the large-scale factory.

His progress was entirely in the technical sphere. American improvements in machinery had made the industry more mechanical, and so divided up operations, begun to permit the employment of less highly skilled workers, and introduced new methods enabling the leather and other raw materials to be used to the best advantage.

At first the war almost ruined Bata by closing his markets. In order to continue working he asked for orders from the military authorities and promptly reorganised his factory so as to adapt it to the needs of the army. He gave up the manufacture of cloth boots, which he had made a speciality, and devoted himself to making leather boots. Thanks to this his Czech workmen, who looked upon the Austrian mobilisation as a catastrophe, were spared military service. At the same time he mastered the methods of high-speed mass production. He procured improved machinery and more capital, doubled his staff, and in 1917 succeeded in producing 10,000 pairs of boots a day with 4,000 workers.

But the war did not help to solve the fundamental problem that was soon to occupy Bata's attention. It had nowhere been a good school of productive efficiency. The ensuing years were of very great use to Bata, for in order to create new markets he was obliged to keep a careful watch over his manufacturing costs. The crucial event for him was the revalorisation, followed by the stabilisation, of the Czechoslovak koruna in 1922. Bata, who did not want to relinquish the mass-production methods he had adopted during the war, had been struggling for three years to extend his markets within the shrunken confines of his country and to recapture his foreign customers, when in 1922 the koruna suddenly doubled in value, and the then Minister of Finance, Rašín, decided to stabilise the currency at all costs. Rašín was aware that if it was to succeed the stabilisation of the currency must be accompanied by a heavy fall in home prices. He appealed to the manufacturers and tried to convince them that their losses would be only apparent, and that the increase in business that would follow the fall would amply compensate them for their sacrifices.

Bata was the first to accept. In the midst of the crisis he suddenly announced to the public a reduction of 50 per cent. in his selling prices, and to the workers both a reduction of 40 per cent. in their wages, to take effect in three weeks' time, and an immediate fall of 50 per cent. in the price of the necessaries of life with which they were supplied by his shops. The result was prodigious in all parts of the country. His competitors were expecting his downfall, but when they saw that people were tumbling over one another to buy his goods they had to bring themselves to follow suit. His example decided other manufacturers to lower their prices, and the movement became

general. Bata's bold step did not endanger his business. It merely led him to pause for breath, as it were, and then, in 1923, to reorganise his factory completely. The 1,800 workers then in his service constituted the smallest staff he has had since 1914. For Bata himself it was a year of hard thinking, and he realised the necessity of radically transforming his undertaking. It was at this time that he introduced his system of autonomous workshops and independently managed selling agencies, which constitute the most original part of his achievement. To these we shall refer later on.

It was in 1924 that he began to make real headway, and every year since has marked a fresh advance. In 1923 he employed 1,800 workers and could turn out 8,000 pairs of boots and shoes a day. In 1924 these figures rose to 3,000 workers and 14,000 pairs; in 1925 to 4,500 workers and 25,000 pairs; in 1926 to 6,000 workers and 35,000 pairs; and in 1927 to 8,000 workers and 55,000 pairs. He finished the next year with 12,000 workers and a daily productive capacity of 75,000 pairs.

In five years the average output per worker had thus risen from less than 4.5 to more than 6 pairs a day. During the same period the average price of footwear was falling. From 220 koruny in 1922, the year of stabilisation, it fell to 119 in 1923, 99 in 1924, 79 in 1925, 69 in 1926 and 53 in 1927. In 1928 it rose to 55 koruny, but this increase represented only a small fraction of the increase in the price of raw materials that occurred in that year, although raw materials make up 80 per cent. of the cost price of Bata's articles. But for further economies in manufacture the increase would certainly have been greater.

The Organisation of the Work

A precipitate increase in output and a steady but rapid fall in prices—such then are the twin consequences of Bata's industrial activities during the last five years. This is not the place for a detailed account of the rationalisation measures that made this success a certainty. Vertical concentration, elimination of middlemen, specialisation, standardisation, improvement of machinery, economy of time and raw material—these are tendencies common to all rationalised undertakings, and can be seen in Bata's as elsewhere. If Bata differs from others in this respect,

it is by the total absence of preconceived ideas and of academic principles. No study at a university, no apprenticeship in different industries, prepared him for his achievement of systematic rationalisation. Every one of his methods was born of daily experience and daily observation of the problems that arose in his business. Bata's rationalisation is essentially empirical. A short sketch of the organisation of his business will suffice to show to what extent this concern for maximum output inspires his whole undertaking and creates the "atmosphere" of the factory.

Bata's undertaking consists of two distinct parts. The first comprises a number of buildings surrounded by a circular wall. This is the factory proper. It fills the hollow of the valley on the eastern edge of the town, and Bata has ensured the possibility of extending his premises further up the valley. The second part lies on the northern slope, where Bata has built a whole town, comprising shops, a restaurant, a cinema, workers' houses, schools, a boarding-house for work-girls, and a building used as a hostel for apprentices. On the other side of the town, down stream, Bata has acquired part of the valley, and has built a new quarter, consisting of 300 workers' houses, and a hospital.

The factory proper, within the enclosure, consists of 32 buildings whose style of construction is alone sufficient to reveal the tendency to standardisation. They are nearly all on the same pattern—80 metres by 12, three well-lighted storeys, and a flat roof. This uniform arrangement has enabled Bata to erect his plant at a low cost, still further reduced by the fact that his masons—for Bata is his own builder and even owns a brickworks—use simplified and rapid methods of working, and standardised materials produced in large quantities. The installation of machinery, tools, electrical equipment and power has all been facilitated by this precaution. But one of Bata's main purposes in making his workshops identical was to be able to compare their output, and to increase it by rivalry. Their uniform lay-out makes it easier for him to draw up his plan of production and to divide up the total among the different workshops.

The 32 buildings house all the administrative departments and workshops belonging to the undertaking, which are thus brought under the direct control of the master. Here are to be seen not only the boot and shoe workshops, but also a paper pulp and cardboard factory, a printing works, a chemical factory,

an engineering and machine-repairing shop, a factory for working up rubber, tanneries and tannin factories. Bata, in fact, in conformity with the principle of vertical concentration, generally buys raw hides, which he tans and dyes in his own establishments. He works up his rubber himself and makes cardboard for his boxes out of textile and leather waste. His chemical factory supplies him with glue, and his presses print the posters that extol his goods throughout the world. For articles which he does not produce himself, such as textiles, his system is different. By giving large orders for a fairly long period, sometimes for a whole year, he obtains favourable prices and makes sure of getting the qualities he needs. This enables the manufacturers who supply him to regularise the work in their own workshops, to place their orders for raw materials in good time, and so to share in the advantages of his rationalisation schemes.

The only department of Bata's that is not enclosed in the precincts of the Zlin factory is his sales department. Here the principle of concentration has led Bata to open 450 shops and branches in Czechoslovakia for marketing his goods. The managers are appointed by him, and are closely controlled by the central organisation at Zlin. Bata also has a large number of agents and representatives abroad.

The programme of work is drawn up in Bata's establishments with the most meticulous care, for upon it depends the entire working of the business for six months. It is the fruit of the collaboration of all the departments concerned. The point of departure is the preparation twice a year of the models for the season. Bata obliges all his representatives abroad and all his branch managers, by contract, to furnish him with detailed information on the needs and possibilities of their local market, and with samples of all competing footwear that has met with any success. Thus armed, Bata has preliminary designs of models prepared by his designers. These designs are shown to all his agents, who are also obliged by contract to visit Zlin at least twice a year. In the course of a general meeting of the representatives, salesmen, and principal heads of departments, each model is made the subject of a detailed discussion : it is accepted, touched up, or rejected, due regard being of course paid to the possibility of manufacturing it at a remunerative price.

When it has been decided which models are most likely to be sold, a sort of stock exchange is set up between Bata's agents

and representatives. Everyone tries to secure in advance the largest possible quantities of the models that he flatters himself on being able to dispose of. But Bata intervenes in his turn to ensure a regular outlet for his goods : he cuts down the share of some and increases, if necessary, that of others, insisting, for example, on an order for a thousand pairs of children's shoes in return for allowing an extra thousand pairs of rubber shoes. Finally, a balance is arrived at between manufacturing requirements and selling possibilities.

On the basis of this compromise the plan of production is drawn up. For Bata it must be such that he can employ his entire plant continuously and that the goods manufactured are sold in advance.

The fulfilment of the first condition is for him to secure from his staff; the second he imposes beforehand on his salesmen. He does not begin to make a single pair of shoes before he is sure of selling them. He makes provision for only one contingency during manufacture—that of increasing his output.

For fixing his cost and selling prices, Bata relies on the figures furnished by the heads of his buying and manufacturing departments. Once established, these prices remain unchanged throughout the season : the buying department must arrange to furnish the necessary raw materials at the prices and in the quantities specified by Bata, and the manufacturing department bears all the risks of an error in the calculation of its cost price.

The list of models selected is handed over to three special workshops, in which Bata has concentrated his most capable workers. The sole and upper patterns are prepared for each size, the design and shade are chosen; all the details, in fact, necessary for mass production are settled in advance.

Except for certain models in general demand, which can be manufactured all the year round, the plan of production is drawn up for six months. Since with Bata the week is at once the unit of work and the unit of accounting, the manufacturing orders are distributed among the workshops in weekly assignments and as regularly as possible. The new models must be ready for the beginning of the season, so that production is naturally more intense during the preceding weeks. Although Bata despatches his shoes to both hemispheres, varies his lines, and reserves the manufacture of standard articles for slack weeks, he finds some difficulty in keeping the flow of production steady throughout the year and is sometimes obliged to work for stock.

But in any case he is guided by two principles in drawing up his plans—never to fall below a minimum figure assuring him a profit, and never to accumulate stocks. The object of this policy is to secure the factory a stable output; and if he asks his salesmen to guarantee this, they for their part can always be sure that goods ordered will be delivered within the specified time.

When the plan has been drawn up and the output distributed over the twenty-six weeks of the season, due regard being paid to public holidays and statutory annual leave, nothing remains but to allot orders to the workshops. The last stage is the drawing up of a table indicating the number of pairs of each model to be delivered by each workshop in each week covered by the plan. The table is posted up in the sales department, which thus knows the exact situation, and can accept or refuse further orders as the productive capacity of the workshops may allow, and fix dates of delivery in advance.

It is the duty of a special department called the Central Department to see that nothing occurs to paralyse the execution of the plan of production. Delays affect the interlocking and almost automatic processes of mass production in too many ways for it to be possible to tolerate them. The Central Department carries out its duties by the use of a system of cards and order slips. It sees that raw materials are supplied to the workshops as they are needed, manufacture begun on the appointed day, and the finished article delivered within the specified time. In the event of delay in delivery it is this department that apportions the responsibility.

Since the Central Department automatically ensures that every order is carried out within the time specified in the plan of production, the only other control to be organised is for quality. At Zlin, this is of particular importance. Manufacturing processes that push time saving to the extreme may easily give rise to mistakes or abuses. Bata has therefore arranged for a triple control of the quality of his footwear.

The first and most efficacious control is that effected in the course of manufacture. The manager of each workshop, whatever rung he may occupy on the ladder of production, is responsible for the quality of the goods that he passes on to those on the next rung. Everyone therefore satisfies himself that the goods he takes over will not be a source of trouble for him. If he accepts them it is at his own risk. Every defect that leads

to a "throw-out" is imputed without discussion to the last workshop through which the finished shoe has passed.

Over and above this automatic and spontaneous control, resulting from the system of workshop autonomy to be described later on, Bata has devised another, consisting of an independent inspector in each assembling and finishing workshop, appointed by himself, whose sole duty is to compare every finished shoe with the models on view in the workshops, and to reject all that appear to him to exhibit the slightest defect. A shoe does not become a total loss by being rejected, but is given a special mark and sold 10 to 20 per cent. cheaper, the difference being debited to the workshop delivering it.

Since the task of the workshop inspector may become extremely arduous in a shop working at full pressure, Bata has arranged for a final control, which is carried out under his eyes before the despatch of goods to customers. In the room in which he is usually to be found, all the standard packages with their twenty pairs of boots or shoes arrive automatically. One of the inspectors opens a box at random and meticulously verifies its contents. He scrutinises one pair in a hundred, but without haste, and the rejection of one defective pair means the opening of all the boxes and the examination of the whole consignment. Delivery may be stopped and the workshop concerned immediately penalised for its defective work.

In addition to the control of the actual making, from the twofold point of view of punctuality and quality, there is that of the cost price. With Bata this is of the very first importance, for the selling price being fixed as low as possible and for six months, it is essential for him to be informed at once of any variations in his aggregate cost price.

The accounting system of the undertaking is on a weekly basis, not only in each department and workshop at Zlin, but also in each selling agency. For the purpose of determining the aggregate cost price, the Central Department has only to combine all the separate accounts and to make allowance for factors such as taxes, overhead costs, and the always considerable risk of throw-outs. The cost price thus determined, both as a final aggregate and for every stage in production, enables Bata, first, to fix his selling prices, by allotting to each workshop or department its proper share of expenses and profits; secondly, to detect any cause of inefficiency by merely noting an increase on the normal cost price; and lastly, in the absence of any

increase, to continue the search for all possible economies in manufacture. For when the plan of production has been drawn up and distributed, Bata is not satisfied with seeing that no hitch occurs to disturb its execution; he labours incessantly both to reduce costs in the various stages of manufacture and to expand output and sales. Economies in production costs are a definite source of profits. As to additional orders, they broaden his margin of profit, because not only has he charged up all the overhead expenses for the season to the quantities included in his original plan of production, but he can also, thanks to his system of workshop autonomy, obtain a higher yield from his workers without increasing his production costs in proportion.

The main item in Bata's production costs is raw material. At Zlin, owing to the mass-production methods adopted, it accounts for 80 per cent. of the aggregate cost price, the remaining 20 per cent. representing overhead and wages [1]. This shows how important it is for Bata that his buying department should be thoroughly efficient.

Here again Bata's rule is to avoid middlemen. He buys his hides in South America, his coal in Upper Silesia, hardly 200 kilometres away, and his textiles in the largest mills. A great part of his wood comes from his own forests in the nearby Carpathians. All his purchases are made from samples, and in the last instance Bata himself fixes the price of the commodity when a sample is found which meets his requirements. Nothing then remains for the buying department but to try to obtain still better terms. Its endeavours in his direction are rewarded by a share in any saving it may effect.

This department is under another obligation : that of not buying until work is about to begin on the material concerned; for Bata includes in his production costs the interest for every day passed by a hide in his warehouses. In order that the stock of raw materials may be as low as possible without there being any risk of a stoppage of work owing to a sudden shortage, the buying department must be kept informed by the Central Department of the progress of manufacture and of new orders received, and by the warehouses of the quantities of materials in stock.

In addition to requiring his buying department to furnish him with raw materials as cheaply as possible, and not before

[1] Apparently this proportion has not been reached by any of his competitors, the best ratios for other factories not exceeding 70 and 80 per cent.

they are wanted, Bata encourages his workshops, by bonus systems, to see that the material is used to the best advantage. It is especially in the sole and upper cutting workshops that he has aimed at the most extreme economy of materials. He has many times distributed large gratuities to his staff on account of economies brought to his notice.

If Bata has succeeded in reducing the share of overhead and wages in aggregate production costs to 20 per cent., this is largely due to the improvements he is constantly making in the plant and the time he has succeeded in saving in the course of manufacture.

The introduction of mechanical processes in shoe-making is of recent date. Thirty years ago the employment of any but hand labour in the industry was almost unknown in Europe. The few manufacturers who used machinery did so only for a small number of operations. Even when the use of machinery spread, enabling boots and shoes to be manufactured on a really industrial scale, in many factories most of the operations continued to be carried out by hand; in fact, notwithstanding the invention of new machines and the improvement of old ones, hand work is still far from being eliminated in boot and shoe factories. No machine yet invented can carry out an operation automatically as is the case in the textile and engineering industries; consequently there is a vast field open to rationalisation. A small alteration in an existing machine, or the introduction of a new one, by reducing labour charges may sometimes substantially lower production costs. In this domain Bata has spared no effort, and it is largely to the technical progress that he has been able to achieve that the lowering of his production costs must be ascribed. A shoemaker by trade, he is a mechanic and an inventor by nature. His favourite occupation is the construction of new machinery and the invention of new methods of work.

This policy of technical organisation Bata has pursued throughout his factory, but it is in the assembling workshops that it has been carried the farthest[1]. The reason is simple. The factory's 36 assembling workshops employ on an average

[1] From the other workshops, where the half-finished parts are prepared, the assembling workshops receive the various parts of the shoe which it is their business to assemble. For Bata the problem has been to organise the work in the preparing workshops so that the number of operations remaining to be performed in the assembling workshops is reduced to the minimum.

5,400 workers, or about half the staff of the undertaking. They are all laid out on the same plan, two to each floor and six to each building ; they are each 40 metres by 20, and are lighted on three sides. Manufacturing conditions are the same for all, which enables Bata to compare their output. With 108 men working at a conveyor and 40 women stitchers on piece work, he has succeeded in obtaining a daily output of 2,000 pairs in each workshop.

With this tempo, it may well be imagined what a minute per pair lost or gained in an assembling workshop means to Bata. Hence no slackening of the pace is tolerated. All the details of the work at the conveyor are adjusted with the utmost care. Each workshop has spare staff and spare machinery at its disposal; all machine failures likely to paralyse work on the conveyors are immediately reported; and the engineering repair shop is always ready to send repair gangs to replace or restart the machinery. But the greatest problem the foremen have to solve to ensure the smooth working of a conveyor is that of recruiting or training a homogeneous team. Homogeneity is a quality that is not acquired in a day. When Bata introduced the conveyor system, output at first fell by 50 per cent.; but it has at least tripled since.

In his endeavours to get the most out of his plant, Bata has not relied on his technical organisation alone. Conveyors may accelerate the pace of working, and ingenious methods may reduce the wastage of raw material to the minimum, but the best plans and the best methods of work are worthless without the co-operation of the worker who applies them. Bata was not long in deciding that it was essential to interest the workers in this part of their duties. It was in this way that he devised his scheme of workshop autonomy, which has already been referred to. The moment has now come to explain in some detail the nature of this scheme, which is certainly the most interesting feature of Bata's system. Furthermore, it is of particular importance for the purposes of the present study because it is comparable, as to its aims, with the so-called " industrial relations " schemes instituted elsewhere. Upon it depends the worker's status, and, in a large measure, the organisation of work in the undertaking. It is on this workshop autonomy that Bata relies to establish the desired relationship between himself and his staff—a relationship taking the form of co-operation, founded on identity of interests, which shall enable his undertaking.

immune from all industrial strife, to function with the regularity of clockwork.

Workshop Autonomy

To describe the motives that in 1924 led Bata to institute his system of workshop autonomy, we cannot do better than quote some passages from Cekota [1], the best exponent of his ideas :

Workshop autonomy is Thomas Bata's vital and fundamental achievement. The guiding principle of his organisation is the transformation of the worker's mentality—from a man whose wages are his only interest, he becomes a collaborator in the undertaking. . . . To effect this transformation, the worker must be given scope for initiative in the matter of production. His incentive must be the desire for gain, the magnitude of which depends upon the inventive genius of the head of the undertaking. . . . The profits of an undertaking are nothing but the sum of the inventive talents, the labour, the efforts—in a word, the initiative—of everyone employed in it. The aggregate results depend in fact on the comprehension of economic necessities and the co-operative spirit of each worker, however humble his task. . . .

The wage systems which served their purpose in the organisation of industry in most European countries during the nineteenth and twentieth centuries do not offer a sound basis for productive and fruitful work ; they weaken the worker's sense of personal responsibility far too much.

The effect of piece wages is better, for they make it possible to reward each worker's quickness and zeal at once, and in proportion to the amount of work done. But here again, especially with the modern division of labour, personal responsibility for the work done is abolished, and relations between worker and employer are limited to the number of pieces delivered and the calculation of wages. As to contact between worker and customer, that is now out of the question. The solitary worker does not in the least concern himself in the interests of the whole group of workshops. Piece wages are too personal, and leave the door open to an endless variety of unhealthy consequences of individualism. That the productive methods of the old-time handicraftsman did not give remarkable results is clear, but they did at least foster individual initiative. When a shoemaker made shoes, he knew that the amount of his remuneration would not depend entirely upon his manual skill, but also on his economical use of leather and other material, the care with which he executed his orders, and the quality of his work, which alone could enable him to keep or add to his customers. . . .

Thomas Bata, who started in the humblest way in a handicraftsman's workshop, has never overlooked the value and utility of this kind of responsibility. He has tried to create a similar system of work

[1] *Neue Wege*, pp. 56, 59.

that would allow everyone, even the operative in a large factory, to work with the same application, the same desire for economy—in time, energy, and material—and the same responsibility, as the independent head of an undertaking who is paid in proportion to his output. He has tried to perfect a system under which everyone employed in the undertaking would be bound to the others by economic bonds, and could exchange his half-finished or finished products for another's. He solved this problem in 1924 in a novel way, and called his solution workshop autonomy.

It thus seems that Bata in the course of his advance towards large-scale industry has been sorry to see the qualities he had been able to appreciate in his father's workshop dying out in his workers, and has tried to restore to them, together with a sense of their responsibility, a little of that professional conscience and interest in their work that were the pride of the old-time handicraftsmen. There is nothing surprising in such a feeling, but it should not be misunderstood. For Bata, philanthropy is a word devoid of meaning. His driving force is solely the wish to increase profit. He has said as much himself plainly and without hypocrisy. In 1924 he made the following announcement to the workers whom he had selected for his first experiment :

> Our reason for giving you a share in the profits is not that we think we ought to distribute charity to mankind. Our aim is a different one. We want to raise the level of production. . . . Manufacture can be cheapened and higher wages paid. So far your individual effort has not given good results, because you have had your eyes fixed on your own needs and you have not troubled to work so as to help those who take over from you. Profit-sharing will put an end to this bad practice, by giving you an interest in the speedy and thorough execution of the work of the entire workshop, and by stimulating greater economy of material.

These few words are a lucid expression of Bata's ideas. They show plainly what he wanted, namely, to replace individual effort by collective effort; to establish the worker's responsibility, not only within the limits of his daily job but in the whole scheme of production; to make him observe the results of his own work and help forward that of all his comrades.

Such being Bata's motives, what is his system ? At the very outset, he drew up a number of precise rules which he has never amended since. Profits should be calculated weekly so as to enable the worker to compare his output as often as possible. and should be set out clearly so that everyone can easily check them himself. The workshops should be divided up into small units so as to give all the beneficiaries of the system an opportunity of contributing personally to the smooth running of the

departments. He also declared that he would pay 10 per cent. interest on all profits left in the business, and that every worker aged twenty or more with at least one year's service in the workshop could share in the profits.

To-day the system of workshop autonomy is applied, with numerous variations, throughout the factory, even in the social departments. The Press department, which publishes the works magazine *(Sdeleni),* is autonomous; so are the hospital, the shop, the restaurant, the cinema. The undertaking is divided into 250 autonomous departments, each of which has its own resources and accounts. Each of these departments debits and credits its neighbours with the goods delivered or received. Each workshop buys all the materials it needs from the workshop next before it in the cycle of manufacture, and passes them on to the next after. It can, if it wishes, refuse a consignment of doubtful quality; or point out that the goods it receives could be bought outside at a lower price, and refuse to pay more. The last-making workshop buys its wood direct from the sawmill, and delivers its products to the assembling workshops at a price fixed by Bata, which includes fair payment for the work done. The superintendent of the raw material warehouse passes nothing on to the rubber workshop or the tannery without an invoice. Every workshop and department has a double interest in the proper execution of the work. They share in the profits resulting from a reduction in their costs or an increase in their output; and they bear the consequences of any poor quality in their work, as shown by the refusal of their goods by the next workshop.

In making his workshop managers responsible financially, Bata ought logically to have required them to give security; but he has devised another plan. Each week he pays only half the profits earned, and retains the rest as security, crediting it with interest at 10 per cent.

However wide the autonomy thus allowed to the workshops may be, it is of course essentially only an autonomy in the keeping of their accounts. A workshop may not use its autonomy except to discharge to the best of its ability the duties assigned to it. It is Bata who, in the last instance, decides as to the allocation of resources and the payment of the different departments.

His system is extremely flexible, but its widely varying forms are always an elaboration of the same rule : to assign to each

department its share of costs and profits, with an elastic margin that shall stimulate the managing staff to increase output, not only by the desire for gain, but also by the fear of loss.

In his assembling workshops, for instance, Bata now applies his autonomy principle in the following way. He allows each workshop a fixed sum, say 2 koruny, for every pair of shoes, and he pays the wages of the workers who are regularly on the workshop books. The workshop manager, on the other hand, must debit the account of his workshop with the cost of electric current, lighting, heating, water, minor repairs if any, defects in manufacture, and the cost of extra staff.

By a sort of royalty on every pair credited to each workshop and building, Bata relieves himself of all management costs, these being calculated high enough for each workshop and building to be able even to make a collective profit. In fact, the system is really that of the workshop contract with an output bonus.

As compared with his chances of earning a profit, the responsibilities of the workshop manager are obviously heavy. The level of production, the main factor in his earnings, is fixed by the central management. The only latitude allowed him is to manufacture the number of pairs assigned to him at the lowest cost, and to hold himself ready to comply immediately with any order to increase output. Each shop is mechanically equipped to turn out 2,000 pairs per day of eight hours. The manager must at any time be able to bring his output up to this maximum. If he does not reach the prescribed level he must bear the risk of delays, indemnities to customers, and even cancellation of orders. But another danger awaits him : the more the pace is forced, the more difficult does it become to get the workers to turn out faultless goods. If time is short, a workman will relax his scrutiny of the material he receives; and if the control rejects defective shoes as they leave the workshop, the reserve assigned to this risk is soon exhausted. With only 10 koruny off each defective shoe, at the most 100 pairs a week or 16 to 17 a day can be thrown out by a workshop without loss, i.e. not more than 1 per cent. of an average daily output of 1,600 or 1,700 pairs.

The employment of extra staff is also not without difficulties for the workshop manager. He tries to get out of the workpeople all that they are capable of giving, but occasionally, especially in the sewing rooms, he has to draw upon outside help. Usually he calls in former work-girls who have left the workshop

after marriage, and who are glad to return for a spell of extra work.

The workshop manager is not responsible for repairs except in so far as machine stoppages and defects in equipment are due to carelessness or poor upkeep, in which cases the engineering shop charges him with the time spent on repairs.

It is important to stress the fact that the responsibility that Bata imposes on his managerial staff to ensure the quantity and quality of the workers' output does not affect each individual worker. Workshop managers, foremen, and the profit-sharing staff [1] are alone responsible; and their responsibility is limited since the risks they run do not extend beyond their share of the profits, their wages not being affected by fluctuations in output. As regards the non-profit-sharing staff, they can, here as anywhere else, be fined for carelessness or serious misconduct (not, however, more than 10 per cent. of the daily wage), but they run no other risk.

The system of workshop autonomy devised by Bata, as has been seen, is much less a social experiment than a measure of industrial organisation aiming at securing the maximum output from man and machine. The system bears the clear impress of Bata's realism; as with all others of his achievements, it is circumstances, environment, and business necessities that have forced it upon his mind. Installed at the back of beyond, in a region devoid of industrial traditions, unable to count upon a skilled labour supply, and compelled in consequence to mechanise his manufacture to the last degree, Bata might well fear that his workpeople, however well trained they might be, would not get the utmost out of his plant. To ensure the success of his technical organisation, he has called psychological factors to his aid. He has brought his workpeople's sense of responsibility to bear by playing on their desire to increase their earnings.

Autonomy enabled him to overcome all the psychological difficulties to which his policy of mass production gave rise. It is thanks to autonomy, to the initiative allowed to an enterprising manager, that in three months he was able to obtain an increase of 800 pairs a day in one of his workshops, passing from 1,200 to 2,000, at the same time reducing the number of workers from 210 to 180. It is again thanks to autonomy that he has been able to profit from competition between his

[1] This term will be explained farther on.

collaborators by stimulating them with bonuses on quantity and quality. The sporting team spirit that he has thus called into being has made it possible for him to train a scratch staff, to ensure its homogeneity, and to secure a regular output.

These are not the only results of the system. Another is that Bata has been able to insure himself against part of the risks entailed by his prodigious progress. By charging a certain amount against every pair of shoes, he not only relieves himself of all overhead costs, but partly covers himself against loss due to faulty work.

The autonomous organisation of his workshops means that they act as a kind of shock absorbers against fluctuations in output. It has enabled Bata to avoid accumulating stocks, to reduce his cost price accordingly, to draw up his minimum programme of manufacture and fix his selling prices in perfect safety, and to increase his profits by any additional orders that come to hand.

These, then, are the advantages that Bata derives from his system of autonomous workshops. It now remains to consider the consequences that the system may have for the workpeople.

Relations with the Staff

Every system of industrial relations requires to be studied with reference to the staff to which it applies, and Bata's organisation is no exception.

In December 1928 Bata employed 12,500 persons at Zlin, not counting 300 masons and building workers permanently employed on the premises, and the staff of his brickworks. The staffs of the sales agencies and repairing workshops amounted to about 3,000 persons. Bata thus provided a livelihood for over 16,000 persons. No mention will be made here of the outside staff recruited on the spot and paid directly by Bata's agents; their conditions of employment, depending on the importance of the locality in which they work, are essentially variable.

The Zlin staff is almost entirely of rural origin. Since the regular population of the town could not supply Bata with more than a small fraction of his labour, he has had to turn to the surrounding country and settle his workpeople around the factory by providing them with housing accommodation. The three

rural districts of Zlin, Uherské Hradisté, and Holesov have each supplied him with 2,000 workers, and the contingents from four others, namely, Uherský Brod, Vsetín, Přerov, and Kroměříz, range from 500 to 2,000. A circle enclosing the districts that have supplied him with over 100 workers would pass through Brno, touch the Austrian frontier, follow the Carpathians as far as Decin, and return by Olomouč. Its radius would be about 100 kilometres.[1]

If the first characteristic of the Zlin workpeople is their peasant origin, the second is their youth. They are divided into four age groups, the percentage of each to the total being as follows :

Group	Per cent.
Men : over 21 years of age	45
under 21 „ „	16
Women : over 18 years of age	26
under 18 „ „	13

According to these figures, the majority of Bata's manual workers and salaried employees are over 21 years old, but most of them look as if they were between 21 and 25. This is not surprising. Since 1923, Bata has increased his regular workshop staff by 10,000 persons ; and the addition of all those who have replaced workers leaving—about 20 per cent. per year of the total labour force employed[2]—gives an aggregate of 16,000 persons who in five years have come to work at Zlin. The nucleus of original workpeople is a small minority compared with this horde of newcomers.

A corollary of these two characteristics of the staff—youth and rural origin—is the absence of industrial tradition and of education fashioned by the environment ; but in order to provide himself with a homogeneous staff, Bata has put authority and the appeal to ambition in their place. On this brand-new staff, capable of being trained, of accepting without a murmur methods and an ideal that men of another generation might have rejected, Bata has succeeded in imposing his discipline. By his system of workshop autonomy he also appeals to his workers' initiative, and he has succeeded in bringing it about that the compliance he exacts is largely voluntary.

[1] Bata's magazine *Sdeleni*, No. 42 of 1928, contains a map showing the districts where the largest numbers of his workers are recruited.

[2] The turnover, as will subsequently be seen, amounts to 30 per cent., but about a third of those leaving return to their place in the factory after military service.

In this way, many vexatious prohibitions have been rendered useless. The prohibitory notices posted up in the workshops are the customary ones, and are often couched in the form of recommendations avoiding the imperative. As elsewhere, it is forbidden to smoke, to arrive late, or to be absent without reason ; but the workers are not overwhelmed with fines. The total amount incurred in 1927 was 70,000 koruny, or less than 20 koruny per worker, and was paid into the provident fund of the factory.

For a large part of the staff penalties inflicted by Bata are superfluous. In the organisation he has created penalties inflict themselves automatically. The worker whose output is insufficient through his own fault immediately sees the result of his poor work in his wages. Team work and the output table constitute the best system of control. Workers whose carelessness and ill-will reduce the output of their workshop are reprimanded, and if necessary eliminated, by their own mates.

In spite of the automatic and impersonal nature of this discipline, the part played by the foremen and workshop managers is still considerable. They must interpret the regulations, and adapt them so as to reach the essential goal of increased output. A brutal foreman may drive his team to desperation, have an excessive labour turnover, and in spite of all his efforts fail to get beyond 1,200 pairs a day. Another, who knows how to manage his workers, and use persuasion and emulation, may reach 1,800 pairs without difficulty. Here again, comparison of the output of the various workshops enables the foremen to correct their methods, and Bata to judge of their aptitude to command by the manner in which they secure discipline.

The degree of compulsion that is enforced throughout the factory, on manual workers and salaried employees, as on workshop managers and heads of departments, may be too rigid for some. Those who cannot stand it leave voluntarily. Others, whose youth and inurement to the hard work of the fields make compliance an easy matter for them, accept it without overmuch difficulty, the more so as the Zlin regime offers them compensations.

The absolute authority that Bata wields over his workers has as its counterpart the equality of all before him. There is no hierarchy at Zlin. The terms "manager", "head of department", are used to designate posts, never their holders. Bata delegates his authority to no one. He has nothing more than a mobile and

changing general staff, composed of the chief manager of each building and a few other trustworthy employees. This equality affords everyone an opportunity of trying his fortune in the works. Few of Bata's immediate assistants are from the outside ; all, or nearly all, have risen from the ranks. There are few engineers, few certificated technicians. Workers or foremen have become chief managers of buildings at 22 years of age ; 25-year-old employees represent him abroad. Thus every apprentice knows that by working hard and by giving proof of initiative he can reach the highest posts. The continual creation of new workshops opens up to all new prospects of gain and of success.

This staff, on which he imposes his authority while throwing open the door to unlimited enhancement of earnings and of welfare by profit sharing and promotion, Bata endeavours to inspire with a common ideal. Here again he makes up for the absence of industrial traditions, an absence that might threaten the homogeneity of his team, and turns what at first sight might appear to be a weakness to the advantage of his factory.

As soon as they enter the factory, he begins to teach his apprentices what may be called his "economic code of morals", which may be summed up in this definition : "A man is not worthy of the name unless he can assure his own and his family's independence." With this philosophy, he deliberately runs counter to the customs of family communism that still prevail in the agricultural districts in which he recruits his workpeople. In their villages his apprentices depend entirely upon their parents, receiving board and lodging from them, and in exchange handing over to them the whole of their earnings ; Bata wishes to oblige them to regard themselves as independent, and thrift as the first sign of independence. "In speaking of thrift", he says, "I do not wish to speak of saving only ; that is the positive side of thrift, and takes only third place. The first thing is to know how to earn ; next, to know how to spend ; saving does not come till afterwards."

Thus, providing for oneself and balancing receipts and expenditure are, for Bata, the signs of economic independence. Hence the appellation he has chosen for his apprentices—"young men" *(Junge Männer)*. Hence, also, the mission he has undertaken, as will be seen later, of teaching his workpeople not only how to earn, but also how to spend.

Workshop autonomy, sharing in profits and in losses, the fostering of emulation and personal ambition by the opening up of avenues of promotion, and the development among his staff of a new economic code of morals that marks a definite separation from their original environment—these, for Bata, are so many means of inducing his staff to collaborate in the essential task that he has set himself, which is to increase the yield of his undertaking. The psychological result of the system is the creation of an *esprit de corps* among his workpeople, and Bata omits nothing that will foster and develop it. In his speeches and in his factory magazine he is never tired of retracing the progress accomplished, and piloting all energies to the common goal.[1] Belonging to the undertaking, being a "Bataman", should be for all, apprentices and foremen alike, a source of pride. The factory is represented by him as a new fatherland, and he misses no opportunity of exalting it. The May Day festival has been used by him to celebrate the common achievement. He makes use of everything capable of nurturing the collective spirit—the magazine, the firm, sport, etc.

This attitude of Bata's, which makes him look upon his undertaking as a real co-operative organisation, in which everyone works at once for himself, for Bata, and for all, and in which accordingly there can be no real contradiction between the worker's interests and those of the workshop manager, nor between the workshop manager's interests and those of the central management, this attitude it is that leads him to look askance at any workers' protection organisation that might come between his staff and himself. He permits no other relations with his workers than personal and permanent contact.

Moreover, he lives literally in their midst. He has installed himself at an ordinary table, half wood, half iron, in the middle of a large room on the third storey of the building in which are concentrated the managerial departments. Around him work his principal assistants and his thirty head managers of buildings. On the right, against a long partition, a large board studded with lamps shows Bata instantaneously where he is wanted. If a difficulty requires his intervention, he goes at once to the spot, and spares no pains to solve it in direct collaboration with his workers.

[1] "This gift", he said, referring to a birth bounty, "should pledge you to loyalty to your work." The declaration that every newly-engaged worker has to sign ends with this sentence: "I know that it is my duty everywhere to defend the interests and honour of the firm, as well as of its staff and my future comrades."

As he exercises absolute control over the technical side of the management of his factory, so he is determined not to delegate any of his power over the human element. He reserves to himself the right, in the last resort, of being the arbiter in any internal disputes that may arise; but he counts upon his system of organisation, and especially on workshop autonomy, to prevent them or settle them automatically. Thus the idea of setting up in his factory a body representative of the workers has never occurred to him. True, he has had to accept the works council provided for in Czechoslovak legislation, but he has learned how to convert it into an instrument of his authority.

He does not interfere in the election of members, but he is aware of the identity of the candidates soliciting their comrades' suffrages. Meetings are held twice a month, as required by law. The agenda is composed exclusively of questions of hygiene and accident prevention, but the council can also take cognisance of disputes between workers and workshop managers. Every worker who has been in the factory for three years is legally entitled to have recourse to the council's good offices. In practice, however, it is rare for disputes to be brought before it. Since 1926 no difficulty has arisen between the council and the management.

It is not easy to see what guarantee the works council affords the workers, but Bata has sometimes found it useful. During the critical days of 1922, when at a single stroke he reduced his selling prices by 50 and his wages by 40 per cent., it was to the works council that he turned to get this Draconian measure accepted by the workers. He was able to persuade it, and, thanks to its aid, to carry out without a struggle the hazardous policy upon which he had engaged.

Bata is even more distrustful of any form of outside intervention than of inside organisations representing the workers. Hence the scant sympathy displayed by him for trade-union activities. Convinced that by his system of organisation he has bound up the prosperity of each of his workers with that of his factory, and that he has thus made them the arbiters of their own fate, he cannot imagine that more can be asked of him, and he insists on trust in himself. Moreover, the spirit of trade-union solidarity seems to him to be in contradiction to the *esprit de corps* that he tries to create in his works, and likely to endanger the direct contact he maintains with his workers. Lastly, the strife that

divides the Labour Movement leads him to look upon trade-union propaganda as a disturbing element, capable of destroying the psychological unity of his undertaking.

So much being granted, Bata is prepared, in the interests of his business, to avoid anything that might lead to a dispute with the unions. He pays considerable attention to the criticisms that the trade-union Press levels against him. The unions themselves, which are theoretically his adversaries, and reproach him with the hold he has over his staff, are ready to come to an understanding with him on practical problems.

As to the workers, it is difficult to know what they think of this state of things. Actually, few of them are trade unionists, and there has been no serious dispute since the reorganisation of 1924 : but trade-union propaganda is not inactive, and it is impossible to say what the future will bring. In any case, in appraising Bata's labour policy and its results, the rather special characteristics of his staff must always be borne in mind. Young, and hardly yet emerged from the almost feudal system of large landed estates, they are still prone to compliance with his system, and those who cannot adapt themselves to it are either eliminated or leave voluntarily. To the remainder Bata has hitherto offered working conditions sufficiently advantageous to preclude any ground for serious discontent. These conditions will form the subject of the next sections of the article.

Recruitment

Bata employed 3,000 workers in 1924, 4,600 in 1925, 6,000 in 1926, 8,000 in 1927, 10,500 at the beginning and over 12,000 at the end of 1928. In spite of the rapid growth of his undertaking he has never had any difficulty in recruiting his staff; the recruiting department receives applications for employment throughout the year, mostly in winter when work in the fields is at a standstill and the sugar refineries are closed. In Christmas week 1928 it filed more than 5,000 applications; the weekly average for the whole year is about 200.

Every applicant must fill in an enquiry form and undertake to answer the questions truthfully. The letter of engagement declares that "a wilfully false statement immediately annuls the contract of employment without any obligation on our part". On the form that applicants for vacant posts in the central depart-

ments must fill in, the usual questions as to education and previous situations are supplemented by the following :

Your parents' circumstances :
Have they :
A house ?
Fields, and if so of what size ?
Savings ?
Debts ?

Your own circumstances :
Have you :
A house ?
Fields, and if so of what size ?
Savings ?
Debts ?

The enquiry form for manual workers is even more searching, for these workers have to state not only the amount of their savings or debts, and of ready money available for their maintenance until their first pay-day, but also what sum they require per week and per year to keep both themselves and any persons who may be dependent upon them. The enquiry form provides for a complete statement of household accounts under the heads of : food, lighting, housing, heating, linen, clothes, footwear, other necessities, expenditure on amusements, and total. The applicant must also state how much he thinks he would have to earn per week and per year to satisfy his needs, how much he wishes to save per week and per year, and what he intends to do with his savings.

The purpose of these questions, which elsewhere would seem more than indiscreet, is not so much to ascertain the financial circumstances of the applicants as to enlighten them about their own requirements. These youths are fresh from the land, without any industrial experience, and ignorant of living conditions at Zlin; moreover, they have but a modest opinion of themselves and perhaps count on eking out their earnings with help from their parents; hence they may easily offer their services at too low a price and fail to ask for a living wage. If they are engaged, the Staff Department begins by giving them a lesson in book-keeping and domestic economy, makes out a new estimate of expenditure for them, makes them understand that the wages they ask are insufficient, and allows more as a matter of course. On the other hand, it forbids the parents to send them anything.

Accepted applicants are summoned to Zlin, where they undergo a medical examination. The proportion of applicants rejected is very low, not more than 2 per cent., almost entirely

accounted for by defective hearing or sight. Some time ago Bata made all new-comers undergo a psychotechnical examination, but he has abandoned this practice because the results were not conclusive. Statements of aptitudes are no longer required except for apprentices. [1]

Every applicant is on probation for a fortnight, during which time he receives the minimum wage of his category. At the end of the probationary period he is either definitely engaged or dismissed without explanation. Only workers engaged for machine work undergo a technical examination.

The new worker is given a contract setting out his conditions of employment and his weekly wage. Any change in his duties automatically entails renewal of the contract and of its terms.

Apart from a few specialists, Bata's policy is only to engage youths whom he can train himself. The wide choice available to him enables him to eliminate incapable or unruly individuals and to retain none but those who are able to adapt themselves to his methods.

Unfortunately the low average age of the staff is the cause of a rather high labour turnover, the rate for 1927 being 30 per cent. over the year. The chief causes of departure are : for youths, military service; for girls, marriage. It is, in fact, an invariable rule of Bata's not to re-employ girls who leave the factory to marry, save in exceptional circumstances or temporarily.

About a third of those who leave the factory do so voluntarily, either because they have not been able to adapt themselves to the discipline or methods of work, or because they have passed an apprenticeship with Bata with the sole purpose of finding better conditions elsewhere.

According to the Staff Department, dismissals are not responsible for a high proportion of departures. The grounds for dismissal are indiscipline and incapacity. As required by law, a week's notice is given to the person concerned; it does not establish any right to compensation.

Apprenticeship

Apprenticeship has always been one of Bata's main preoccupations. Obliged by his remoteness from all industrial centres and by his manufacturing methods to train the greater part of

[1] See below, p. 243.

his workers himself, he has long made arrangements to give them their general and technical education in his own factory.

The number of apprentices has naturally grown with the development of the factory. From 180 in 1925 they increased to 900 at the end of 1928; the building that Bata has just bought to house them has room for 1,500.

Bata always dissuades parents who send their children to him from making clerks of them, and urges them to choose careers in the factory that are suited to their aptitudes. All applicants have to undergo a psychotechnical examination on arrival. To the usual tests for sight, perception, touch, and hearing, are added certain others specially adapted to the type of work awaiting the apprentice. Once accepted, the apprentices are housed by Bata in a special building and subjected to an almost military discipline. They rise at 5.30 a.m., go through a few gymnastic exercises, dress, tidy their room, breakfast together, work in the factory from 7 a.m. to noon, lunch, and amuse themselves. They restart work at 2 p.m., leave at 5 p.m., dine, and from 6 to 8 p.m. attend courses in book-keeping, commercial correspondence, English, German, drawing, etc., according to their aptitudes. They have all to be in bed by 9 p.m. On Sundays those who live near go home, and the others amuse themselves with games or sports, or go for walks.

Each dormitory has 22 beds arranged in pairs, one above the other as in a ship's cabin. Perfect cleanliness of body, clothing, and premises is insisted upon. Each room is under the orders of a "captain", elected for six months by his comrades and responsible to the director of the hostel for the discipline and cleanliness of all. The length of the stay in the hostel is three years; the usual age of admission is 14 years. At the end of each year the apprentices are free to leave the factory or to stay on, but voluntary departures seem to be very rare.

On the other hand, apprentices may be dismissed at any moment if they do not give satisfaction. Their work in the workshop is reported on by the foreman, their work in the hostel by the teachers, and their conduct by the director of the hostel.

Apprenticeship entails passage through all the workshops, even for youths intended for office work. Bata deems it essential that his employees in the buying and selling departments, and his future managers and representatives abroad, should be acquainted with all the details of manufacture, and themselves be

able to judge of the quality of raw materials or finished goods. The final choice of duties is not allowed until after this stage in the workshops, and it is thus made with full knowledge of the circumstances.

Apprenticeship with Bata includes not only vocational training, but also the preparation of the young worker for the accomplishment of his social duties. It is here that Bata has put into practice what has been called above his "economic code of morals".

From his first week at Zlin the apprentice earns a wage adequate for his maintenance; but he has to put down in a note-book his estimated expenditure for the week and to submit the estimate to the director of the hostel for approval before entering the items in his accounts.[1] The apprentices are obliged

[1] The following estimates and actual expenditure of S., aged 16, a third-year inmate of the hostel, are given by way of example :

Week 46			**Earnings : 271 koruny**
Board		70	
Lodging		4	
Linen		2	
Sickness insurance		8	
Taxes		2	
Fine		0	
Pocket money		15	
	Total	101	101
	Savings		170
Week 47			**Earnings : 437 koruny**
Board : 100 (reduced to)		75	
Lodging		4	
Linen		2	
Insurance		8	
Taxes		11	
Fine		15	
Pocket money : 15 (reduced to)		10	
Outdoor clothes : 287 (suppressed)		—	
	Total	125	125
	Savings		312
Week 48			**Earnings : 425 koruny**
Board		80	
Lodging		4	
Linen		2	
Insurance		8	
Taxes		9	
Fine		1.20	
Pocket money		15	
Debt		50	
Clothes : 100 (struck out after reflection)		—	

While in the factory S. has up to the present saved 3,126 koruny, not counting interest.

by this supervision to use part of their earnings to increase their savings, on which Bata allows interest at 10 per cent.

According to the statements in the account book given them, the youths can save 20 to 30 koruny out of their average wage of 120 koruny from the moment they enter the factory. Theoretically, they should be able to save 8,000 koruny, including interest, in three years. Actually some of them succeed in amassing about 6,000 koruny in this time, but the average is about 3,000 or 4,000 koruny. In the common-room of the hostel a roll of honour is posted up bearing the names of the youths who have saved the most in the course of the year.

Hours of Work

The regular hours of attendance in the factory are from 7 a.m. to noon and from 2 p.m. to 5 p.m.

The question of actual hours of work at Zlin is a highly vexed one. In certain Czechoslovak trade-union circles Bata has long been accused of failing to comply with the statutory requirements, and of making his staff work more than the regulation eight hours. It is partly on this criticism that the charge of "social dumping" levelled against the Zlin undertaking is founded. [1]

Bata has defended himself vigorously against this accusation. An opinion may be formed of his arguments from the reply made in January 1929 to an article by Dr. Schwenger in *Soziale Praxis*:

In an article entitled "The Bata System" Dr. Schwenger asserts that with Bata there is no normal working day and that ten and even eleven hours' attendance is almost the rule.

In view of this assertion we declare that:

(1) Our chief, Mr. Thomas Bata, attached particular importance to the eight-hour day before there was any question of making it the subject of legislation in Czechoslovakia.

(2) Since it came into force, the Act on the eight-hour day has naturally been respected. Before the afternoon spell (2-5 p.m.), and at 5 p.m., the current is switched off and it is impossible to continue working in the workshops.

(3) The law allows overtime in certain circumstances, as in Germany. Overtime work must be previously approved by the authorities and paid at special rates. Our practice in respect of overtime is in strict conformity with the statutory regulations.

(4) Repair work on machines, cleaning, etc., are, of course, done

[1] The most recent authors to formulate this charge are Rudolph Philip, in his book *Der Unbekannte Diktator*, and Dr. R. Schwenger, of Prague, in an article in *Soziale Praxis*, 29 Nov. 1928.

outside normal working hours, but only by special shifts and in conditions fixed by contract.

(5) We gave proof of our strict compliance with the Act on the eight-hour day before District Court No. 1 in Berlin in the course of proceedings respecting the prohibition of the sale of Rudolph Philip's book, "Thomas Bata, The Unknown Dictator". The Court unreservedly accepted our evidence, which was a ground for the injunction that it granted shortly afterwards, prohibiting the sale of the book. Among other proofs we lodged statements by the Ministry of Social Welfare at Prague and the factory inspectors of the Zlin district, showing that there could be no question of hours of work being exceeded in our undertaking, at least since 1926.

To conclude, with us the normal duration of work is fixed at eight hours, except when the authorities have been asked for a permit to work overtime. Moreover, hours of work form the subject of a declaration in the working regulations which are submitted to the authorities for approval, posted up in the factory premises, and given in booklet form to every worker when he enters the factory. [1]

Without entering further into the details of the controversy that has arisen between Bata and his critics, the author of the present report believes that he may be able to clear up certain misunderstandings by offering a few remarks in the nature of first-hand evidence.

It should first of all be observed that for Bata what counts towards hours of work is essentially the time specified for each

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[1] Account should be taken of the following observations in Dr. Schwenger's reply, which have the value of first-hand evidence:

"In face of the reply made by Bata's firm, I am obliged to maintain my statements. As a matter of fact I did not say that the management of the undertaking gave orders for more than eight hours to be worked. But actual observance of the hours of work is another matter. Bata's system is so organised that, owing to the programme of work, overstepping the eight hours becomes a necessity, not in the sense of the Act, but in reality. . . .

"If the programme is not adhered to the worker sees his wages reduced. In practice the programme is carried out, because the interests of the foreman, who has to accept full financial responsibility for its execution day by day, are at stake. With Bata there is no overtime as understood by the Act and requiring separate payment. . . .

"When I was at Zlin (April 1928) I found that the intervals between entering and leaving the workshop were indeed marked off by blasts of the siren, but that the workers actually began their work much earlier or left it much later. In the course of conversations with workers I learnt that work began at 6.15 or 6.30 a.m., was interrupted at noon, restarted at 12.30 or 1 p.m., and finished at 5.30 p.m. The two-hours' break at midday, as any visitor can see for himself, is not strictly observed. . . .

"I must admit that my personal observations or those of any impartial visitor to Zlin do not tally with the statements of the Czechoslovak authorities. It is a matter of personal opinion. The passage relating to hours of work in the judgment of the Berlin Court in the case of Bata *v.* Philip leaves no room for doubt. It reads as follows: 'The plaintiff has himself had to admit that the eight-hour day was not scrupulously observed in his undertaking up till 1926. With regard to the subsequent period, however, he has lodged statements by the local factory inspectors at Kremsier and the Czechoslovak Ministry of Social Welfare, from which it appears that no further infringements of the eight-hour day have been reported.'"

operation in his plan of production. This plan is drawn up not for an eight-hour day, but for a seven-and-a-half-hour day, at least in the assembling workshops. The remaining half-hour is a kind of extra allowance to compensate for minutes lost owing to difficulties in starting the conveyor, or by unforeseen delays or stoppages. Trained workers have no trouble in completing their work within the prescribed time; and the Central Department does not ask the others to work beyond their powers, for a forced pace has a harmful effect on output and lowers the quality of the finished goods.

The only question is whether the extra half-hour allowed is enough to cover all risks of delay or stoppage entailed by the execution of the daily programme of work, and whether the Central Department, in the case of urgent orders, does not tend to impose an accelerated plan of production on certain workshops, which cannot carry it out except by extending hours of work. In either case the workshop manager, being financially responsible for executing the order within the prescribed time, will be tempted to lengthen a working day rather than be obliged to speed up the work next day at the cost of quality, for which he is equally responsible. He may also, when circumstances allow and in order not to interrupt the regular work of his team, let some of the partly trained workers prepare their work before the regulation hour or finish it after the workshop is closed. Each case requires separate treatment, and is to a large extent left to the discretion of the workshop or department manager.[1] Nevertheless, in the matter of hours of work, the powers of the workshop manager are subject to strict control by the central management.

In the central departments, and especially the Sales Department, the only time available to the employees for drawing up their plan of work or checking their accounts is after the departure of their subordinates.

Similarly, it might be difficult for a workshop or department manager to leave the factory at the same time as his workers. He must make up his returns and accounts, examine his stocks, and discuss matters with his colleagues. It may thus happen that on some days he works an extra hour or two. This is one consequence of the responsibilities and duties attaching to his semi-independent status under the system of workshop autonomy.

[1] It may be noted that workers who have finished their work before closing time are free to leave the factory. This is frequently the case with women stitchers on piece work.

Actual hours of work depend on the output required, the experience of the workshop managers, the skill of the workers, and the homogeneity of the teams.

It is now admitted that abuses may have occurred during the experimental period when the new system was being got under way. The have, however, diminished as the rationalisation of the undertaking has progressed; for repeated and excessive infringements are signs of inefficiency and cannot fail to disturb the management at least as much as deterioriation in quality or decrease in quantity.

Bata is even of opinion that the improvements effected in his methods of production will soon enable the working day in his factory to be reduced to seven hours. To his mind, all depends on how the time in the factory is spent, and he accepts the view that it can be put to still better use.

Bata gives all his staff one week's leave with pay per year, the amount of the pay being the average wage earned during the year. He prefers to close the entire factory rather than to give the workers leave in turns throughout the year. The period chosen by him for this leave is the first week in July.

The total number of working days, excluding leave, Sundays, and public holidays, amounts to 300 per year.

Wages and Social Insurance

Bata has four principal methods of payment :

(1) individual piece wages;
(2) collective piece wages;
(3) fixed weekly wages;
(4) wages with a share in the profits.

(1) *Individual piece wages* were in general use before the reorganisation of 1924, but at the present time they are not paid to more than about one-sixth of the staff. This system is now chiefly employed in the assembling workshops for the payment of teams of women stitchers. It presents no novel features.

(2) *Collective piece wages* are now the rule in the assembling workshops, and in all places where it has been possible to introduce the conveyor system of working. This method applies to about half the staff. The method of computation is to assign a fixed amount of wages to each unit of a workshop's output, to multiply this sum by the number of units manufactured, and

to divide the total earnings among the workers in proportion to the wage scale of their category.

To determine the amount of wages to be assigned to each unit, Bata first takes the *maximum* production of the workshop, say 2,000 pairs in the case of an assembling workshop. He then fixes the *maximum* wage attainable by the workers in each category, and on this basis calculates the total wages of the entire workshop.

Suppose the workshop to comprise 80 persons [1], 40 belonging to the category whose average wage [2] is fixed at 480 koruny per week, 10 to the category at 240 koruny, 20 to that at 210, and 10 to that at 150. Then the total wages of the workshop will be : 19,200 koruny for the first group, *plus* 2,400 for the second, *plus* 4,200 for the third, *plus* 1,500 for the fourth, or, in all, 27,300 koruny for a weekly output of 12,000 pairs. The wages paid per unit of output will therefore be 2.275 koruny. Once this wage unit has been established on the basis of the maximum output of the workshop, the number of workers regularly employed, and the average wage of each category, two other simple operations enable the wage due to each individual to be calculated :

(a) Multiplication of the wage unit by the number of articles manufactured : if the output, instead of reaching 12,000 pairs, is only 10,000, the staff of the workshop will be paid 22,750 instead of 27,300 koruny; if it is only 6,000 pairs (the minimum figure), the staff will be paid 13,650 koruny.

(b) Distribution : the share of each individual worker depends on his place in the wage category to which he belongs and is proportional to the output reached. A worker in the first category, with a maximum wage of 480 koruny, is paid 240 koruny if the output does not exceed 6,000 pairs, 360 if it is 9,000 pairs, and 480 if the maximum is reached. Thus a worker's actual wages under this system may vary from the minimum up to twice as much, the amount indicated as his remuneration within his category being always a maximum figure.

Up to 1928, Bata had divided his staff into five categories : skilled men had an average wage of 450 koruny, unskilled men 360, skilled women 240, unskilled women 180, and youths (apprentices) 130.

[1] Not counting women stitchers paid individual piece wages.

[2] By "average wage" is here meant the average of the wages paid to all the workers in a given category. These wages vary with the difficulty of the work. The average wage for the first category, fixed by Bata at 480 koruny for 1929, is the average of the following wages : 570, 540, 510, 480, 450, 420 koruny.

At the beginning of 1928, holding that a man who had reached his majority ought to be able to earn 80 koruny a day, so as to save and to satisfy the needs of his family, Bata devised a new classification and divided his staff into four categories, namely :

Men over 21 years (45 per cent. of the staff) : 480 koruny;
Women over 18 years (16 per cent.) : 240 koruny;
Youths under 21 years (26 per cent.) : 210 koruny;
Girls under 18 years (13 per cent.) : 150 koruny.

This apparently complicated wage scheme is closely bound up with the system of workshop autonomy. It tends to create a feeling of solidarity in the workshop and to promote the homogeneity of the team. Suppose, for instance, that Bata decides to establish a new workshop. He will take a few good workers from the existing workshops and make up the number required with untrained labour. Until the workshop reaches the minimum output provided for, a minimum wage of 200, 100, 90 or 75 koruny, according to the worker's category, will be paid. The aim of the workshop manager will naturally be to train his staff and bring it to a higher output as quickly as possible. He knows that as soon as he has done so the Central Department will not fail to increase his share of orders, and that he will be able to earn more. If one worker, by laziness or unskilfulness, hampers output, the manager transfers or eliminates him; if another displays special qualities, the manager makes him his assistant.

(3) *Fixed weekly wages* are the rule for the employees of the central departments, and for all workers whose remuneration cannot be made proportional to production. In order to stimulate this section of his staff, Bata, at the end of the year, is accustomed to add a bonus to the weekly wage, the amount depending on the services rendered.

(4) *Profit-sharing* is at once the reward and the penalty for all responsibilities incurred. It therefore affects only those members of the staff on whom responsibility is conferred, and how it affects them depends upon the nature of their responsibility.

The number of persons sharing in the profits is from 20 to 30 in each assembling workshop; that is, 50 to 60 per cent. of all the workers in the first category (over 21 years), or about 30 per cent. of the entire staff.

Profit-sharing is effected by different methods according to the type of work. In the Selling Department it takes the form

of commission; in the assembling workshops, of a bonus on output. Moreover, each participant's share does not represent the same proportion of wages. It is undoubtedly the larger part of the total earnings of those employees who are paid a commission on sales or on purchases; and of the earnings of heads of departments, whose fixed salary is low, and in some cases is not more than 200 or 300 koruny a week. For the majority of beneficiaries, however, it constitutes a supplement that for a worker in the highest category (480 koruny) may be reckoned at about one-fifth of the normal wage.

In any case the amount of the share in profits is purely contingent, unlike the wage, which, although variable, can fluctuate only between fixed limits, with a maximum of double the minimum. It is even more sensitive than the wage to fluctuations in output, and in addition depends on the quality of the goods. The profits earned by a workshop in one week may be swallowed up by its losses the next. In the commercial departments chance necessarily plays a prominent part. A sudden fall in the cost of raw materials, or an unexpected order, is a lucky windfall that the next day may wipe out completely.

Only half the share assigned is distributed by Bata each week, the other half being automatically paid into the factory account of the person concerned, and credited with interest at 10 per cent. [1]

To justify this compulsory deposit, which has been criticised as encroaching on individual liberty and saddling the undertaking with too heavy a responsibility towards its staff, Bata points out that in his view the share of profits does not constitute a part of the wage. Since his system of autonomy entails financial responsibility, he regards the share retained by him as security serving to cover him in case of loss. This measure, of course, applies exclusively to the supervising staff of the higher categories. Hence the amounts due to these employees vary from week to week, and their earnings are not secure until all risk

[1] The compulsory deposit of half the share in profits dates from 1924. At first Bata confined himself to allowing 10 per cent. interest on savings voluntarily left in the business by his workers—an appreciable advantage, since the interest allowed by the State Savings Bank is not more than 4½ per cent. He has continued to allow the workers to benefit by this scheme, but has limited voluntary deposits to 10,000 koruny. In 1922, the sums on which Bata allowed interest at 10 per cent. amounted to six million koruny; in 1923 to nine million koruny; and in 1924 to 12 million koruny. In 1925 the aggregate deposits, voluntary and compulsory, rose to 17 millions, in 1926 to 26 millions, in 1927 to 40 millions, and in August 1928 to 58 millions.

of throw-outs is past, that is to say, some months after the work has been done. Bata adds that in case of departure his employees are naturally entitled to ask for the refund of their savings; that the savings are returned to them as soon as the responsibility incurred can be considered to have expired; further, that in point of fact the waiting period is more often than not reduced, especially in the case of sudden departure; and that, lastly, the payment of interest of 10 per cent. on deposits is a substantial compensation to the depositors for the obligation to deposit. In practice, employees sharing in the profits can draw money from their accounts as they need it.

The extreme complexity of the system of remuneration adopted by Bata, and the large number of variables involved in it, make it difficult to give an exact idea of the level of wages in his undertaking. Emphasis should, however, be laid on the steady rise of the average wage as shown by the following figures furnished by Bata. It is interesting to compare this rise with the steady and simultaneous fall in selling prices of boots and shoes.

Year	Average weekly wage of adult workers	Average selling price per pair
	Koruny	Koruny
1922	166	220
1923	180	119
1924	205 + 50 [1]	99
1925	220 + 60 [1]	79
1926	240 + 80 [1]	69
1927	380 + 90 [1]	59
1928	480 + 90 [1]	55

[1] Amount of share in the profits.

In conformity with the legislation in force in Czechoslovakia, Bata deducts from his workers' wages their share of contributions to the various statutory insurance schemes, and pays them, together with his own, into the district fund. There is nothing unusual in his organisation in this respect.

Bata's position in connection with unemployment insurance, however, continues to be the subject of controversy. Czechoslovak law makes the right to insurance depend upon membership of a trade union. The small proportion of trade unionists employed by Bata may well give rise to fears that a very large part of his staff cannot take advantage of the safeguards offered by the statutory unemployment insurance scheme.

Safety and Industrial Hygiene

The prevention of accidents is the concern of the Medical Department of the factory. The high quality of the plant is one of the factors making for fewer accidents. The Medical Department proceeds by stages: two years ago it concentrated its efforts on generalising the use of electricity in the undertaking; last year the watchword was the abolition of all transmission machinery, and the equipment of each machine with a separate motor. The Department keeps itself informed as to progress elsewhere, so as to obtain ideas for its own work.[1] Whenever the work involves danger, special posters warn the workers against it. This is done in the tanneries for anthrax, and in the cutting-out workshops for the risk of cut fingers. Posters are used to put the workers on their guard against the commonest accidents, e.g. those due to careless handling of electric wiring, and traffic accidents, both on the road and in the train. These posters, of the type used in all factories, are reproduced in the factory magazine, and in the evenings are discussed in the hostel before the youths and girls.

For the last two years the Medical Department has regularly compiled statistics of the factory accidents and their causes. It only records those resulting in suspension from work for at least four weeks. In 1926 it recorded 128 accidents among 8,366 workers, or 1.51 per cent.; and in 1927, 147 among 10,402 workers, or 1.44 per cent.

Industrial hygiene, like accident prevention, is within the province of the Medical Department of the factory. The head of the Department, Dr. Gerbec, was for many years the Zlin public health officer. He knows the local population, its physical robustness, and its weak spots. Bata, who attaches great importance to hygiene in his workshops, and good health in his staff, allows him wide discretion. Bata also retains the technical services of a collaborator whom he pays to keep him informed of the most recent discoveries, and for whom he maintains a Chair of Industrial Hygiene in the University of Brno.

Medical treatment is given by three medical practitioners who are in constant attendance at the factory, both day and night.

[1] In the tanneries many accidents have been avoided by placing terminals out of reach. Workers who have to use them are obliged to stand on a stool in order to reach them; they are thus protected against any danger due to liquids on the floor.

They have a consulting room and a theatre for urgent operations. The new hospital[1] undertakes normal operations and the care of the sick. Bata allows the wives and children of his workers to use the facilities offered for medical consultation.

According to Dr. Gerbec, the general state of health of the workers is good. Departures from the factory on account of illness are very rare. Bata never dismisses anyone in consequence of illness or disablement; he always finds work for his own workers who have been ill or are disabled. For some posts he even engages persons who are disabled or blind and secures them working conditions equal to those of the rest of the staff.[2]

Lighting is everywhere abundant. Blue light is used in the evenings for office work. In the workshops the system of separate lighting for each machine has been abandoned in favour of general lighting.

The dust-removal system is said to be the best of its kind in Czechoslovakia.

In the tanneries, where it is difficult to secure perfect cleanliness from the workers, the workshops are well ventilated and carefully kept. The workers are protected against corrosive liquids and chrome solutions by rubber gloves and special masks. The use of masks is also compulsory in the workshops in which leather is dyed with a spraying pistol.

In the assembling workshops many workers, both men and women, work seated. Hitherto the seats have been stools without backs, but now various types of seats with backs are being tried, and the model found to be the most practical will at once be put into use in all the workshops. Workers obliged to work standing are, if necessary, protected against varicose veins by elastic stockings, or, more frequently, by a change of work.

Eyes and ears are severely tested at the time of engagement. Experiments are in progress to ascertain the value of contrasted colours as a means of facilitating the work and resting the eyes.

Occupational diseases are rare, but one interesting discovery deserves mention. It was recently noticed that working with hammering machines, on which Bata employs about 40 workers,

[1] See below, p. 260.

[2] In a pamphlet entitled " Not Charity, but Work " Bata gives a list of disabled persons employed in his factory. On 11 August 1928, of the 206 then in his employment, 39 had been disabled while in the factory ; the others had been taken on from outside. Their wages varied from 180 to 500 koruny per week. Of the 25 who were blind, 6 had saved more than 2,000 koruny.

sometimes caused more or less complete paralysis of the fingers. As soon as this new malady was discovered, the Medical Department decided to examine all the workers concerned; 32 have already been under observation, without any complaint from them. The symptoms reported have been under protracted investigation; some workers have been placed under observation, and if necessary will be transferred to other jobs. In future all of them will be periodically examined.

No general enquiry into fatigue and its effects on productive capacity has yet been undertaken; but the Medical Department intends to enquire into the reasons for the lowering of quality in the workshops, and to remedy it. The system of rest pauses has not yet been under consideration; Bata once thought of introducing a compulsory break at 10 a.m. to interrupt the long morning spell, but he came to the conclusion that the unforeseen stoppages that occur in work on the conveyor are numerous enough to enable the workers to have some rest from time to time.

In order to avoid excessive fatigue, the maximum speed of the conveyor is now adjusted so as to employ not more than 70 per cent. of the average worker's energy. Furthermore, Bata has solved the problem of monotony of work, so far as it is solvable, by the great variety and number of new jobs that he offers his workers. Phlegmatic individuals, who readily adapt themselves to automatic work, do not try to change their occupation if their work does not seem too hard, or if they find their wages satisfactory; and such people are more numerous than is thought. As to those who have a liking for change, Bata is quite ready to offer them a job to their taste.

The Medical Department has also concerned itself with the fatigue caused by the journey to and from the factory. It has secured the co-operation of transport undertakings with a view to shortening a number of long journeys.[1] The organisation of special motor-bus services has not been easy, for whereas in the morning trains and motor-buses pour out their torrents of workers at the hour the factory starts work, departures in the evening must be spaced out until after dinner and the first cinema performance, which ends about 7 p.m. In spite of these arrangements, part of the staff still comes to work on foot, less for the

[1] Bata has encouraged the creation of transport services for his staff, reserving the right of intervening to regulate fares.

sake of economy than of necessity, many of them not being able to reach their homes buried in the country otherwise than by footpaths or lanes. Since being elected Mayor of Zlin, Bata has given his full attention to the improvement of the roads, and as soon as they are fit for it, motor-buses will carry his staff over them.

Living Conditions

The little village of Zlin, which ten years ago had less than 4,000 inhabitants, would certainly have been incapable of housing and feeding the 13,000 persons whom Bata has attracted there, if he himself had not taken a hand in the matter.

His achievements in this province, outside his factory, are the natural complement of his internal organisation; they are characterised by the same concern for cost prices, the same methods, and the same general considerations.

The Social Department

The Social Department is entrusted with the general administration of Bata's institutions. Like the other departments of the factory, it is an autonomous organisation; it has its own budget, and is subject to the same efficiency discipline. Its importance is steadily growing: Bata, who allowed it 4½ million koruny in 1925, and 9 millions in 1926, increased his grant to over 16 millions in 1927. It is housed in a special building at the factory gates, and administers the following institutions:

A nursery, founded by Bata for his workers' children, but also available to mothers who come to do their shopping in the factory shops;

Two kindergartens, one open to all the children of the town;

Medical consulting rooms, installed in the selling agencies in the town, supplemented by a pharmacy and instruction in child welfare;

Popular soup kitchens, open from 15 November to 15 March, so that the children of the neighbourhood who attend school at Zlin need not return home in the snow at midday; at present 150 children are on the register.

In the course of the year the Social Department organises entertainments for both adults and children. Its other duties include the supervision of the administration of the two hostels,

for youths and girls respectively, and of the workers' dwellings. It also controls the quality of the meals served in the restaurant and the management of the cinema, and organises all sporting events. It advises mothers in their homes, teaches them hygiene and housekeeping, and sees to the good behaviour of the staff.

Finally, it administers the birth bounty fund created by Bata on the occasion of his fiftieth birthday. Since 1926 each of his workers' children has become the owner at birth of a savings deposit book, with an entry of 1,000 koruny, which is credited with interest at 10 per cent. so long as the father or mother works in the factory. Up to 1 August 1928, 787 children had benefited by this scheme, and Bata had endowed it with nearly a million koruny. The accumulation of interest should enable the holder of a savings book to draw out the sum of 9,846 koruny at 24 years of age if the conditions attaching to the gift are complied with. [1]

Housing

Up to 1925 Bata had contented himself with building a few worker's houses and providing accommodation for his apprentices. In 1926 he built his workers 200 dwellings arranged for four families, with a separate entrance for each. Each dwelling has an area of 56 square metres, and contains a kitchen, a lumber room, a combined bathroom and washhouse, and a bedroom, the whole being let at 15 koruny a week. In 1927 he added to this nucleus 167 two-family houses. Each flat comprises a cellar, a kitchen, a combined bathroom and washhouse, a living room, and two bedrooms, and has its own central-heating system, the inclusive rent being 25 koruny a week. In 1928 Bata built a further 200 houses of the 1927 type.

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[1] The following are the conditions for the grant of a savings book :

The child's father or mother must have been employed in the factory for at least a year before its birth. The sum of 1,000 koruny is entered in a savings book issued by the factory savings bank in the child's name ; the book is non-transferable and may not be sold. Interest is at the rate of 10 per cent. and is added yearly to the capital. The book is left in the charge of the father or mother so long as he or she is employed in the undertaking. The capital and interest are paid to the owner on the completion of his 24th year. If the owner marries before the age of 24 years, the capital may be paid as dowry, subject to the donor's consent. If the child dies, the capital and interest are paid in to the welfare fund for children of members of the staff. If the father or mother is discharged from the undertaking, the savings book has to be returned to the savings bank of the undertaking, with which it remains until the owner is 24 years old. The undertaking reserves the right of paying the capital and interest at any time.

The Social Department can now house 1,800 girls in the enlarged hostel, 1,500 youths in the new building erected for them, and 1,364 families and 3,222 unmarried persons in the workers' houses, or more than 9,000 persons in all. The workers who wish to rent a dwelling register with the Housing Department, and their wishes are met as vacancies occur, large families naturally being given priority.

Bata hastened to build so as to benefit by the exemption from taxation granted by the State in respect of new buildings till the end of 1928. He considers that he has taken adequate steps for the moment; his workers are in fact beginning to build for themselves with their accumulated savings, and Bata willingly helps them to set up house and settle down.

The rents that he asks represent strictly the payment for the capital cost of the buildings; they are calculated so as exactly to cover interest and redemption charges on this sum.

Household Supplies

Bata's shops are intended to furnish his workers with all they require, chiefly food and clothing, at cost price. They occupy the ground floor of a standard building 200 metres from the factory entrance. There are departments for underclothing, piece goods, ironmongery, groceries, bicycles, meat, fruit, vegetables, etc. A large space has been set aside for the retail sale of milk and its consumption on the premises. Bata has for many years encouraged his workers to drink milk; on the contrary, neither beer nor any other alcoholic drink is to be found in his shops.

In order to reduce his prices, Bata has aimed at producing everything possible himself. His farms supply him with milk, butter, eggs, poultry, and part of his meat. What he lacks he buys wholesale and sells at cost price *plus* transport and overhead charges. It would appear that in this way he has increased his workers' purchasing power by one-tenth, one-fifth, or one-fourth, according to the article, at the same time supplying them with wholesome food and well chosen goods.

Bata also tries to make the stocks held by his shops a means of influencing the expenditure of his staff. While he has not banished relatively costly articles from his shop windows—fine underclothing and furs are to be seen in them—he gives the most

prominent place to the articles he considers the most useful. In particular he encourages the sale of motorcycles and light cars, which, he considers, conduce to the good use of spare time.

On the first and second floors of the same building is the restaurant, which is divided into four large rooms furnished with tables and benches. Bata has adopted the American "cafeteria" system, in which the customer himself fetches his food, and brings back his table utensils when he has finished. In this way 6,000 meals are served in an hour. Every day four different menus are posted up. The midday meal usually costs 3 koruny —50 heller for soup, 2 koruny for meat and vegetables, and 50 heller for pastry or coffee.

Utilisation of Spare Time

Every day the second floor of the restaurant is converted into a cinema. The first performance is given at 5 o'clock and the second at 7. The large hall, which can seat 2,000 persons, is partitioned off in the middle. There are two screens, and the film shown on one appears half an hour later on the other, a single orchestra sufficing for both. The programme is changed daily. The cost of admission is 50 heller.

In his cinema Bata has a powerful means of exerting a moral and educative influence on his staff. In this respect he finds the choice of films more effective than verbal recommendations or articles in the factory magazine.

He offers his young workers a second means of employing their spare time, namely, sport. All sports are in vogue at Zlin —running, jumping, boxing, and above all football. He has given his players a magnificent field, and has done everything possible to train them and to bring them into the front rank of Czechoslovak teams. Here, too, he has found a means of strengthening the *esprit de corps* on which he relies to keep the psychological unity of his undertaking intact.

Social Hygiene

Bata considers his worst enemies to be alcoholism and tuberculosis, the two scourges that decimate the local population.

In his fight against alcohol his only weapons have been to prohibit its sale on his own premises, to discharge every drunkard without mercy, and to encourage the sale of fruit, mineral waters, and, above all, milk. Since he has been Mayor of Zlin his powers have been wider, and consequently his campaign more effective.

He also wages active war against tuberculosis. The Medical Department has been instructed to examine his workers thoroughly, and to track down every case of tuberculosis. Two specialists have been engaged for this purpose, with the following results :

In 1925 the proportion of the whole staff treated for tuberculosis was 1.30 per cent. The percentage rose to 2.5 in 1926, and fell again to 1.53 in 1927. In 1928 the Medical Department examined 1,423 workers chosen at random, 800 in the boot and shoe workshops, 540 in the subsidiary manufactories, and 73 apprentices. Of the total, 73 per cent. were noted for a more thorough examination; about one-fifth of these underwent a technical examination, and 14 per cent. of this fifth were X-rayed. Only 7 cases of tuberculosis of any kind were discovered, i.e. 0.49 per cent. of all workers. In the town, where deaths ascribed to tuberculosis were at the rate of 5 per thousand in the first decade of the century, the rate had fallen to 1 per thousand in 1927.

Cases of typhoid fever have always been relatively numerous at Zlin, so Bata has been at pains to obtain drinking water for his workers. He has had water brought to his factory from the mountains, and has it bacteriologically examined every month.

His finest achievement in the domain of social hygiene has been the foundation of a model hospital. This is composed of a central building containing the operating theatres and the administrative offices, and separate one-storey wards. It was built in a year at a cost of 6 million koruny, and is already in perfect working order. It is, however, still far from completion; of the projected 15 buildings with 300 beds, only 6 buildings with 80 beds have so far been erected. Its completion will cost a further 9 million koruny. Its medical staff, at present 5 physicians and surgeons, is to be increased to 20. The technical installation is highly remarkable. The wards are isolated, and the operating theatres admirably lighted and equipped. Several rooms have been fitted up for ultra-violet ray treatment. The hospital administration is another interesting feature. By obliging the nurses to keep the accounts of each room Bata has been

able to reduce the administrative staff to a single steward aided by a clerk.

He does not look upon the hospital as a philanthropic work, but rather, like his houses and his restaurant, as a department that should pay its own way. In addition to his workers, whose hospital expenditure is defrayed by the sickness insurance scheme, Bata admits to the hospital sick persons from outside, who are divided into three categories according to their means. As there is no other hospital in the district, he is almost sure of seeing his creation prosper.

Conclusion

In its essential principle, Bata's entire system can be reduced to a policy of efficiency. The world production of shoes, he says, is only 900 million pairs per year, whereas there are 2,000 million human beings. If only two pairs a year are allowed for each person, it will be seen how wide the margin is between supplies and requirements. To provide mankind with the shoes that it needs, it is not enough to increase production; cost prices must be reduced; in other words, efficiency must be increased. This is the end that Bata has set out to attain and to which he has subordinated his entire organisation.

But in thus serving mankind at large Bata has, of course, no intention of sacrificing the interests of his undertaking; for the need for shoes will not be met unless his undertaking prospers and his selling prices can be lowered by the continuous expansion of his mass production. In this respect the interests of his factory appear to him to be one with those of the consumer. The function of the manufacturer is to serve both by continually improving his equipment and methods of work.

This notion of "service", which Bata invokes to justify his industrial activities, he extends to his staff. To serve the undertaking and so help to satisfy a need of mankind should be the intention of every one of his workers. But Bata does not believe that such a frame of mind can be induced by moral suasion alone, and it is in putting this view into practice that the originality of his scheme becomes manifest. By means of workshop autonomy, the sharing of profits and losses, collective piece wages, commissions and bonuses, he has set out to establish a real community of interests between his undertaking and each of his workers. Without in any way decentralising the management,

he has so distributed responsibilities that the earnings of most of his staff depend on the results of their work, or on that of the team to which they belong or which they direct. The greater the responsibility the closer the connection between earnings and output. He has thus striven to make his workers the arbiters of their own fate and to make them feel that they have a personal interest in the success of the undertaking.

Considered from this point of view, the Zlin factory appears to be a network of small undertakings; but here again the system does not entail for Bata the abdication of any part of his authority. He retains all managerial functions. It is he who, in the full exercise of his sovereign powers, fixes the terms of the varying contracts that he concludes with each of his workers, and the data for calculating the remuneration due to each. In this matter Bata does not tolerate any trade-union interference or any kind of collective negotiations. As head of the undertaking, with his eyes riveted upon efficiency, it seems to him that his obvious duty is to grant his staff the best conditions compatible with the interests of the factory, for upon the improvement of these conditions depend in a large measure the quantity and the quality of his output.

From the standpoint of industrial relations, Bata's system is thus characterised by the total absence from its mechanism of bodies representative of the workers. Bata relies entirely on the working methods that he himself has introduced to establish automatically relations of peaceful collaboration between his workers and himself.

It must not be overlooked that if Bata has been able, and in some measure has been compelled, to extend his authority so far as to influence the household economy and expenditure of his staff, it is not solely for temperamental reasons; it is also because, first, the labour on which he has had to draw for his teams could not be readily adapted to his tempo of work or to the entirely new conditions of life at Zlin except by strict discipline; and secondly, because the youth and the rural origin of this staff made it easy for them to accept his authority.

Briefly, the working of the entire system as organised at Zlin depends upon two psychological factors : the personality of the chief and the special nature of the labour employed. It is these factors that give Bata's system its strongly personal stamp and, so to speak, its local colour. It is the work of a man who has

adapted it, with a perfect comprehension of hard facts, to a given environment and at a specific stage in the evolution of that environment. It would be impossible to predict *a priori* what it would become in another's hands, or applied to another environment, or at another time.

But, be this as it may, the particular form assumed by the Bata system at Zlin does not seem to be inseparable from the original principle underlying it, whose social consequences are deserving of notice. This is the breaking up of the large undertaking into a multitude of small autonomous workshops; and the endeavour to develop in the wage earner a real sense of being an essential part of the undertaking, and to transform him, to some extent and in proportion to the responsibilities he carries, into a collaborator having a direct interest in production.