

Ten Years of Experience in Executives Training for a Large Group of Iron and Steel Companies

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THE IRON industry in Italy was very successful in the past when iron ores were reduced by charcoal, by artisans. But in the second half of the XIX century, a new process was developed in Great Britain, using pit coal for reduction of iron ores; this process spread quickly throughout Europe, except in Italy, because our country is lacking in this raw material.

The Italian iron production could not therefore grow as quickly as in other countries; in 1905 was constructed the first Italian blast furnace and our country was thus introduced in the group of iron and steel making countries; the output of steel of that year reached 300,000 tons whereas France produced 2,300,000 tons of steel, Germany 9,100,000 tons, Great Britain 5,900,000 tons and the United States 20,300,000 tons in the same year.

In spite of its more recent origin and the lack of raw materials, the Italian production gradually increased and in the last years reached unexpected records; in 1957 the output of steel reached 6,787,000 tons and therefore Italy was at the 4th place after Germany, Great Britain and France.

The iron and steel companies of the FINSIDER Group largely contributed to this development, especially from 1948 till now. The total production of these companies amounts to 60-70% of the whole national production.

The FINSIDER is a financial organisation which manages the majority of stocks of about 50 companies. The most important FINSIDER Companies are:

- Five iron and steel companies: Cornigliano, Dalmine, Ilva, Siac, Terni;
- Siderurgica Commerciale Italiana which sells the iron and steel products of FINSIDER Companies in Italy
- Ferromin, managing the major iron ore mines existing in Italy;
- Sance, producing refractories;
- Cementir, producing concrete by blast furnace slags.

The FINSIDER was created in 1937 by IRI (Institute for the Reconstruction of Industry) with the objective of strengthening the Italian iron and steel industry; from that year this organisation gradually developed and is now the major iron and steel organisation existing in Italy and one of the major European

organisations in this field.

The FINSIDER Companies produced in 1957:

- 1,282,222 tons of iron ore
- 1,699,304 tons of pig iron
- 3,472,695 tons of crude steel
- 2,767,387 tons of hot rolled products
- 282,110 tons of cold rolled products,

and employ on the whole 61,200 dependents.

The FINSIDER manages its companies by Boards of Directors. Furthermore, the FINSIDER coordinates some activities, in agreement with the general directions of the Companies and gives special centralised services.

One of these centralised services is the FINSIDER Institute. This institute was created by Ing. Oscar Sinigaglia, late President of the FINSIDER, with the following tasks:

- (1) Researches in the field of metallurgical chemistry
- (2) Researches on furnaces, heat economy, refractories and ores
- (3) Researches on metallurgical-mechanical processes
- (4) Production and installation of control and measurement equipment
- (5) Bibliographical services
- (6) *Recruitment, selection and training of executives to be employed by FINSIDER Companies*

The problem of recruiting, selecting and training personnel to be employed by the industries is very difficult in Italy because of the particular kind of instruction programmes of Italian professional institutes and universities. Especially in the universities the students receive a general and theoretical background instead of a technical specialisation.

The major reasons of this situation are the lack of cooperation between universities and industry and the excessive number of students in comparison with the means at the disposal of the universities.

For these reasons it is generally recognised that, before employing a technical school graduate, it is necessary to give him a specialisation. This specialisation must be based on a practical training which integrates the theoretical and general knowledge given by technical schools and universities.

This situation is more difficult for the iron and steel industry, because in this country a university degree in the branch of metallurgy does not exist; on the other hand the comparatively small development of our metallurgical industry in comparison with other countries and the corresponding low possibility of employment in this field does not justify,

at least now, the creation of a university degree on metallurgy.

At Present some Italian university programmes provide only for two courses on "metallography and metallurgical processes" and on "science of metals"; these courses are not compulsory i.e. it is not necessary to attend these courses to receive the degree: the students can include them in their study programme only if they are interested in this field.

As a consequence a young graduate will be unprepared to face and to readily understand the problems of iron and steel making.

This is not the case for mechanical, electrical and civil engineering industries, because the university engineering courses give a rather complete preparation in these fields and the graduates are sufficiently conversant in the fields to understand technological operations and to specialise by self-development or by the guidance of superiors.

It is therefore evident that a young graduate employed in an iron and steel industry and directly put, for example, in a steel making department had to face a very difficult situation. He had to learn how to make steel without special knowledge or help. As a consequence the graduates acquired very often only a superficial knowledge of the iron and steel technology and steel making remained a master's task.

On the other hand graduates had no possibility to improve their knowledge by reading books, because of the lack of Italian technical and scientific bibliography; and very seldom they knew sufficiently English and German to read foreign texts. The only method at their disposal consisted in observing the work of experienced people and in trusting their own talent! Too little indeed in comparison with the training developed for iron and steel technicians in other countries.

For these reasons it was absolutely urgent and necessary to select and train young graduates to be employed in iron and steel industry.

The activity of the FINSIDER Institute in this field began in 1948, the year of its foundation, but formerly in 1942 the Technical Direction of ILVA, one of the greatest companies of the Group, began to select and train young people; therefore the activity of the Institute can be considered as the continuation of that developed by ILVA from 1941 up to 1948.

The selection and training methods were in the beginning rather rigid and exclusively developed for technical graduates, but afterwards they were modified according to the specific needs of the companies.

These methods underwent a complete change in 1957. Thanks to the precious experience gained during 8 years of activity and to an adjournment by applying the most recent techniques. The Institute realised a new *recruitment, selection and training plan*, which better suited the companies' new needs developed by the changed European *industrial and economic situation*.

First of all, this plan has foreseen an enlargement of the Training Department of the Institute. This Department, in which specialised technicians are employed, was divided into sections interested in:

- (1) recruitment and selection of young technical school and university graduates,
- (2) training of technical school and university graduates,
- (3) special training courses,
- (4) personnel research.

The new recruitment plan has the objective of helping companies in obtaining the most suitable persons for employment by collecting names from technical schools and universities and in establishing a complete information programme on iron and steel industry for students and teachers. This programme includes:

- Technical lectures on iron and steel industry held by FINSIDER experts;
- Films on iron and steel making;
- Exchanges of information and use of the bibliographical service of the Institute;
- Help to university students in preparing theses;
- "Open house" programmes;
- Summer employments for students;
- Distribution of brochures describing the iron and steel industry and the FINSIDER Companies.

By means of this programme the recruitment is easier, because the students learn to know the possibilities of employment in FINSIDER Companies before their graduation.

The recruitment programme is based on annual forecastings of personnel needs done by each FINSIDER Company. According to these forecastings, the selection programme is established: the candidates, with the particular aptitude required by the Companies, are selected examining the data collected in the Institute file and are invited for a preliminary interview. A preliminary selection is made analysing the job specifications, the application form and the evaluation done during the interview with the candidate.

The candidates suitable for the position are invited for examinations at the Institute.

The outline of examinations is the following:

- (1) Psychotechnical evaluation of candidates by administration of personality and intelligence tests.
- (2) Standardised written tests of languages (English and German).
- (3) Standardised written tests on technical knowledge (general tests and specific tests for each specialisation).
- (4) Medical examination.
- (5) Oral examination on results of written tests, on interests and orientation of the candidate. (The Examining Committee is composed of executives of the Institute and personnel and line executives from the company which required hands).

The young people suitable for the position will

undergo a training course. The most important objectives of the course are as follows :

- (a) to give the trainees a clear and general knowledge of iron and steel processes and of relative services.
- (b) to get them acquainted with the Company in which they will be employed.
- (c) to have them placed in a job suitable for their specialisation and personality.
- (d) to train them on specific problems related to their specialisation.
- (e) to give them some limited responsibilities of a job place.
- (f) probation in their job place, so that they can be introduced easily to their actual duties.

The entire training programme is divided into three phases :

- 1st phase : "Orientation" (7 weeks)
- 2nd phase : "General Training" (13 weeks)
- 3rd phase : "Specific Training" (which lasts according to the kind of specialisation).

The first phase has the objective of giving the graduates general knowledge of iron and steel processes and of the major executives' duties.

This phase is realised by means of lectures and discussions at the Institute and visits to services of FINSIDER Companies : the trainees to be employed by different companies are assembled in one rather small group.

The Institute's executives have the responsibility to prepare, realise and control this phase and to do merit rating of the trainees ; the Company's executives give the necessary technical assistance.

The second phase, general training, has the objective of getting the trainees to know the Company in which they will be employed ; they have to become familiar with the processes and services and they are trained in group work.

During this phase the trainees study and solve general problems of the Company in which they will be employed and they attend lectures on particular techniques at the Institute ; the trainees appointed at the same company are gathered in one group, even if they have different specialisations.

As for the first phase, the Institute's executives have the responsibility of preparing, realising, and controlling this phase, while the Company's executives give the necessary technical assistance ; the trainees' merit rating is done both by the Institute's executives and the Company's executives.

At the end of this phase, according to the above mentioned merit ratings, the Institute's executives

do the final merit rating and judge the aptitude of each trainee to cover his future job place ; for the suitable trainees, the specialisation established during the selection is confirmed.

The objective of the third phase, "specific training", is to give training to people in their specialisation field and to have them accustomed to their future job place.

This phase cannot be planned, because for each specialisation a particular training is needed.

After the description of training courses for young technical schools and universities graduates held at the FINSIDER Institute, we will mention very briefly also the methods used in the realisation of these courses : these methods are very practical and are applied according to the characteristics and the objectives of each phase of the course.

The methods used include :

- lectures
- discussions and meetings
- study and bibliographical references
- visits
- questions
- problems
- probation
- attendance to special courses

Visits to other Italian industries or abroad.

At the end of training the young graduates are put in the job place most suitable for their own aptitudes.

They are able in a brief period of time and with complete efficiency to give their best because they have general and specific knowledge and know well their own company : they have a sufficient preparation to solve problems that they have to face every day in their job, and they have suitable means for self-improvement.

In addition, the Institute keeps contact with these young people after their employment in the Company, especially by the bibliographical service. This service can be considered a life-blood by which every person is informed of the world experience in his own field of specialisation.

These are the achievements of the FINSIDER Institute in ten years of tireless and enthusiastic work constantly encouraged by the wish to make a valid contribution to the progress of what can be considered both the means and the object of all human activity : man himself.

Acknowledgment

The author wishes to thank the Istituto Siderurgico FINSIDER for permission to publish this paper.

DISCUSSIONS

Mr. M. A. Sreedhar, Messrs M. N. Dastur and Co., Calcutta : The FINSIDER is evidently exceedingly well organised for its function and it is commendable that it has been achieved in such a short a time.

Merit-rating is well known to be a very difficult process. I would like to know if factors have been determined for raters and how detailed the specifications are. Is there any method for rating after

selection interview?

It has been stated that merit-rating during the training period is done both by executives of the Institute and of the company. Is this a periodical check and is it not difficult for the executives of the Institute to rate a person who is not under their constant surveillance? I would also like to know from the author if training in work study and operational research are included in the specialisation stage.

Prof. A. Scortecchi, Director, Istituto Siderurgico, Italy:

Specifications: In co-operation with the departmental head, who is in need of a person to fill a vacancy, an executive of the Institute develops a simple job description and specification with the help of a form meant for this purpose. The main information asked for is as follows:

job description

- most important duties
- human problems involved
- working conditions
- compensation
- future opportunities
- job specification
- age

qualifications

- languages
- experience
- training required
- general personality
- intellectual characteristics
- character and personality traits
- objectives and interests
- behaviour.

Rating after selection interview: The selection supervisor conducts interviews with candidates and rates character, intellectual capacity, abilities and behaviour and marks as follows:

- very good
- good
- fair
- average
- low

After this interview the candidates take an examination the outline of which is described in the article. The results of psychotechnical tests, language tests, technical tests and medical examination are evaluated in the same manner as the selection interview. On

the basis of the *viva voce* examination and the above mentioned tests, each member of the Examining Board gives his comments and after a discussion among the members of the Board the final result is given. The candidate is evaluated as follows:

The candidate is unfit to fill the post. (In this case the candidate is rejected and his papers are filed).

The candidate is suitable to fill the post at a future date or is suitable in general to fill a post in the company. (In both these cases the candidate is taken into consideration whenever the company needs hands for other jobs).

The candidate is fit to fill the specific job. (If more than one candidate are fit, the department head makes the final selection: the candidates, who are not selected by the department head, are taken into consideration for future similar vacancies).

During the first phase of the training, described in the paper, the trainees are rated each week only by executives of the Institute, who are responsible for them. The most qualified executives of the company hold only lectures on technical subjects during the visits of the trainees to the plants. During the second phase, the trainees are rated at the end of each problem (about every two weeks). The trainees are constantly guided by executives of the Institute, who are responsible for the organisation of the phase, and by executives of the companies, who give the necessary technical assistance.

During the first and second phases of training the trainees study the following subjects:

- Principles of management and organisation
- Introduction to iron and steel production
- Introduction to rolling mills, finishing and other operations
- Principles and techniques of human relations
- Operations research
- Job analysis and evaluation
- Cost reduction
- Management controls
- Labour contracts

It is necessary to point out that the objective of this course is not to create experts in the above mentioned subjects, but to introduce the trainees to the advanced techniques of industrial management and administration.

