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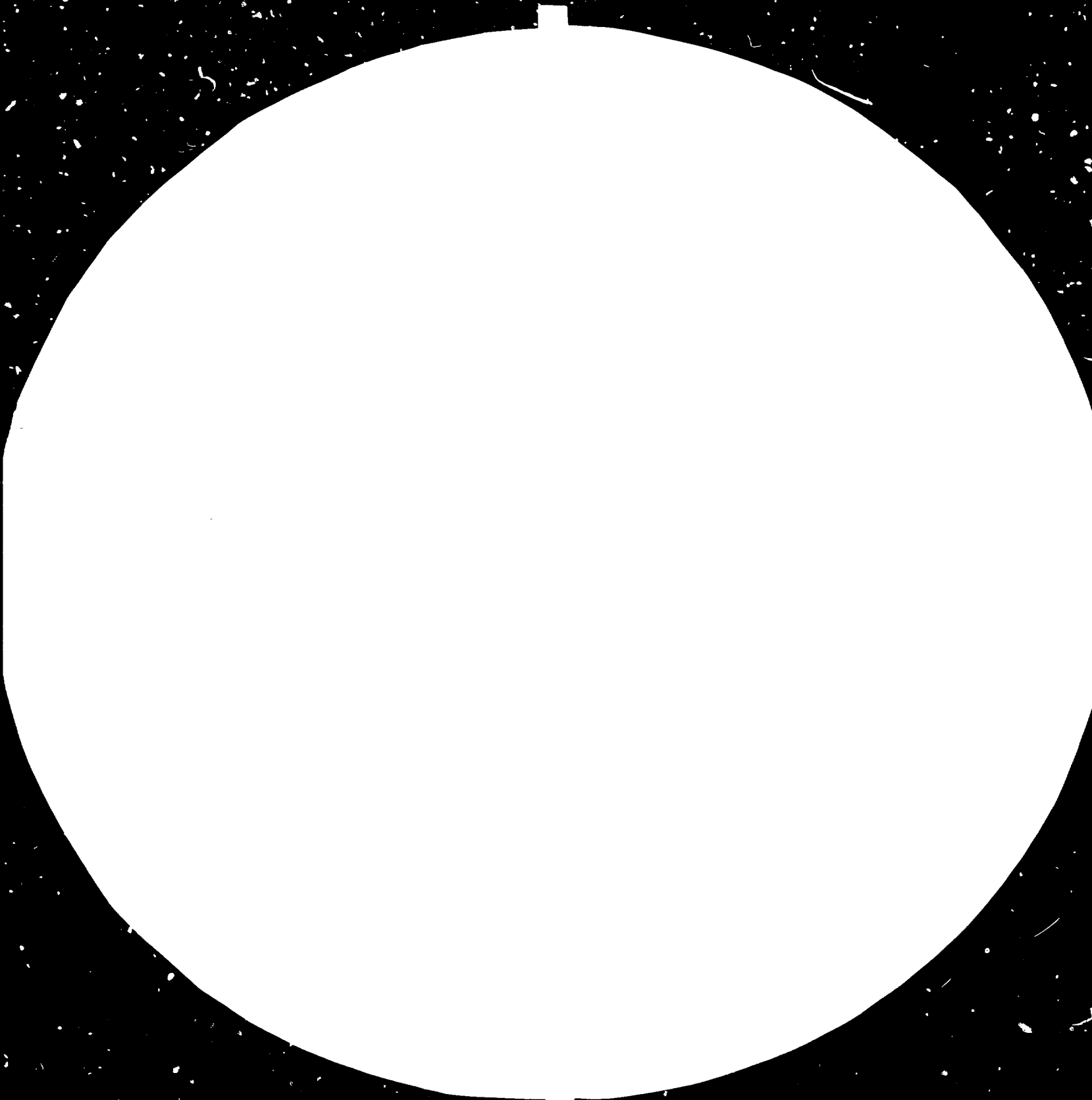

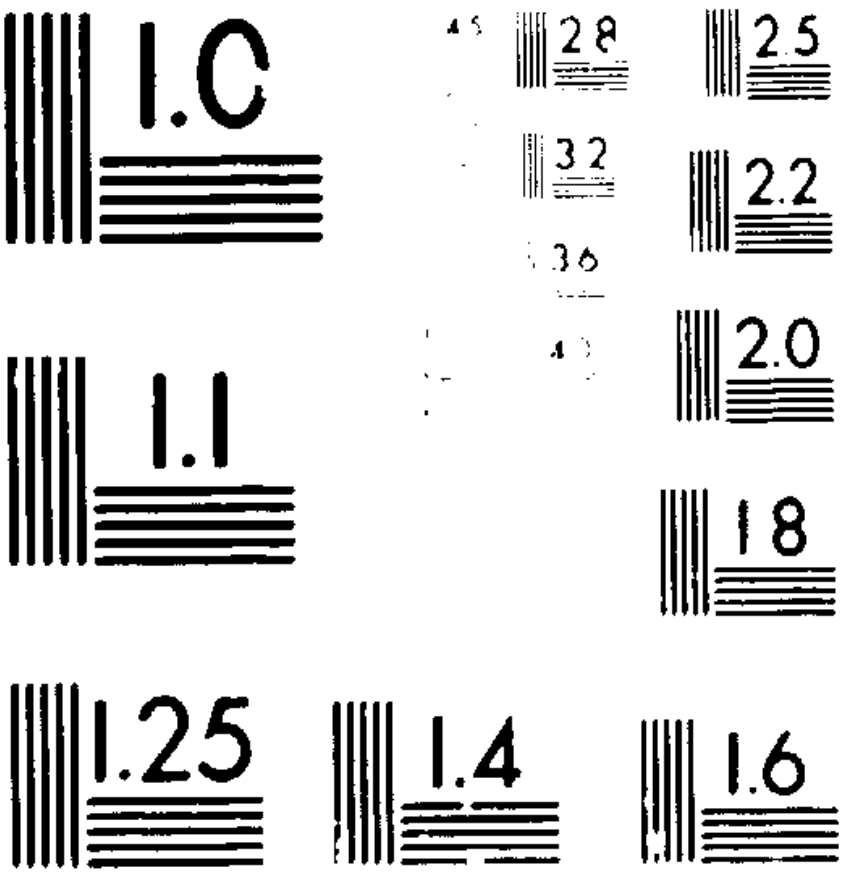

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UNITED NATIONS INDUSTRIAL DEVELOPMENT ORGANIZATION

Negociations Branch

SURVEY ON FRENCH COMPANIES PRODUCING ELECTRICAL POWER EQUIPMENT.

Pierre Vernet

Grenoble, July 1984

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INSTITUTE OF ECONOMIC RESEARCH AND PLANNING OF DEVELOPMENT

UNIVERSITY OF SOCIAL SCIENCES OF GRENOBLE

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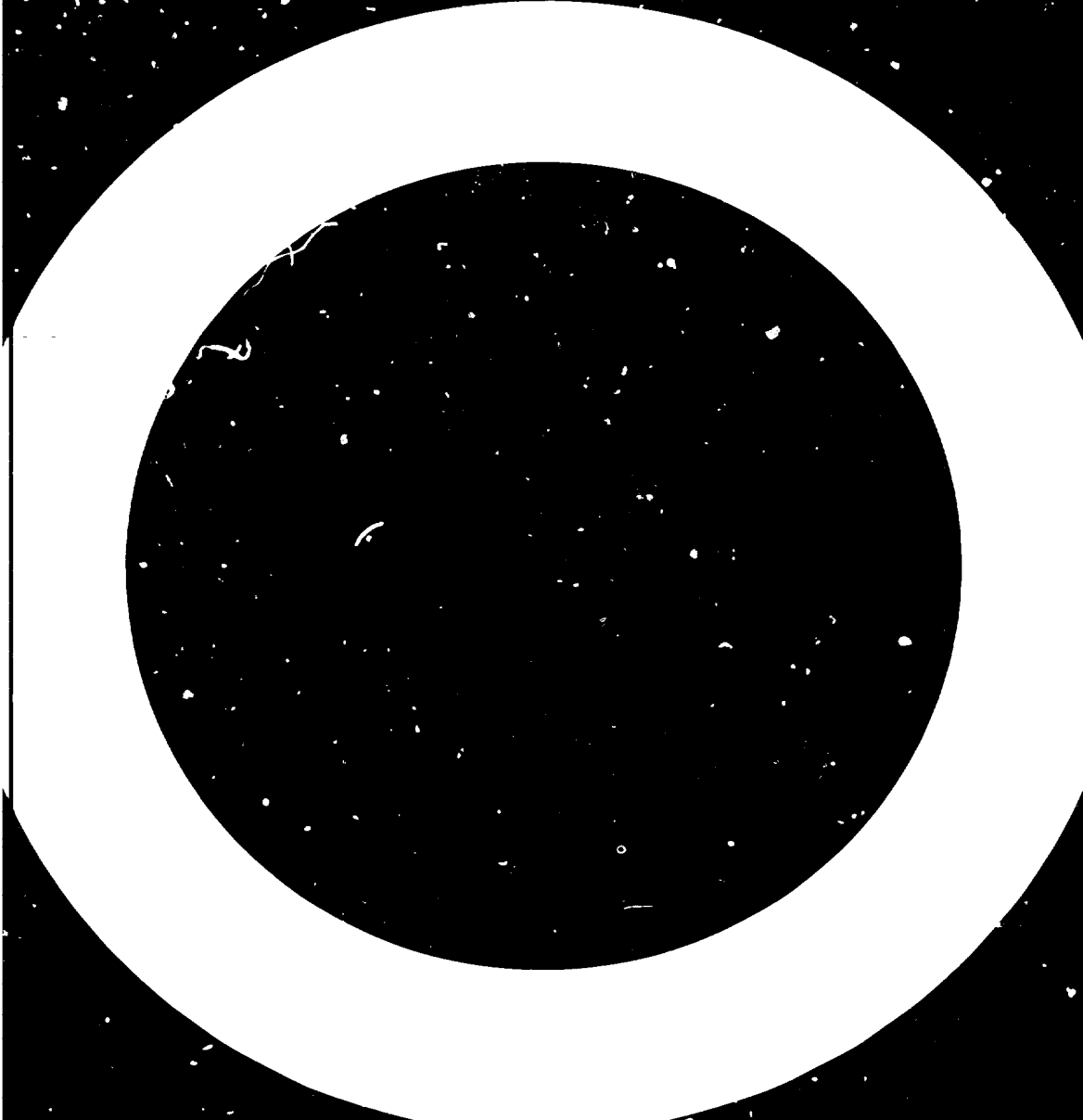

SURVEY ON FRENCH COMPANIES PRODUCING

ELECTRICAL POWER EQUIPMENT

Test of the methodology and of the final form of the questionnaire on possibilities of co-operation and the conditions of transfer of technology.

1.Acceptability of the questionnaire.

The questionnaire elaborated in Dec.1983 by Mr GAULÉ has been tested on some companies producing electrical power equipment. Once the purpose of the inquiry was explained to the poeple concerned, the questionnaire was globally well accepted. Nevertheless, it should be noted that this acceptability came from previous relationship between personnel of the IREP and the poeple in charge of industrial relations with Developing Countries in these different companies. For instance, the answer of an official in a firm with which we did not have previous contact was completly negative: "Our projects in the Third World Countries are secret". But, this attitude is not general and the inquiry form elaborated by the IREP was accepted. There was no problem of industrial secret: the data and the strategies that the questionnaire aims to cover are discussed within the companies and also during different meetings.

2.The survey.

It was often necessary to have two or more meetings in a company before it was possible to complete the whole inquiry form. For example, with ALSTHOM-ATLANTIQUE, one of the main French companies of the sector, in particular for the heavy electrical material, two interviews were realized: the first one with MM. CHAVON DEMERSAY and STRACK, the second one (in-depth interview) with Mr STRACK alone, on the 25th of June 1984. Mr STRACK is Vice-President in charge of International Investment. His geographical area concerns Industrialized Countries as well as Developing Countries.

The discussions with high ranking officials in large companies are very effective as far as global strategies are concerned. They have precise ideas on what the company intends to do in Developing Countries and to what corporate policy this refers. They generally do not know the precise data concerning the sales of each division in Developing Countries, the percentages of shares in the different associated companies, etc. Mr STRACK, for instance, took note of all the data that were needed for this inquiry, and sent them by mail later. In small companies it is much easier to get these figures: the general manager generally knows all the data concerning his company. During the interview made in MALICO, a small producer of electrical fittings (tension clamps), in Fontaine near Grenoble, complete information was obtained from the President during one sole interview.

3.Presentation of two examples in the French sector.

ALSTHOM-ATLANTIQUE (A.A.) is a group that belongs to the French nationalized Compagnie Générale d'Electricité (C.G.E.), which holds 65% in A.A. It has 41 000 employees and the sales in 1982 were 13.7 thousand million French Francs (excluding taxes). Consolidated with the sales of the companies in which A.A. has a majority share, the sales were 16.1 thousand million Francs. Only the shipyard division (18% of sales) is not part of electrical industry. All other divisions are more or less concerned with electrical construction: pumps made in the mechanical division are installed in thermo or diesel electrical power plants, traction electrical motors are made in the railways division, etc. A.A. exports about 50% of its production (only 40% in 1983, but 51% in 1982); the majority of these exports are sent into Developing Countries. The geographical breakdown of the exports to Developing countries in relation to the total sales, is:

. 15% towards Asia (excluding Japan)

. 7% towards Africa

. 5% towards Middle-East

. 6% towards America (excluding USA and Canada).

These exports to Developing Countries represent 33% of the total sales, or more than 80% of total exports of the company. It is worth quoting that 90% of these exports are dependent of French financing (bilateral aid) and 10% of Multilateral financing (World Bank or Regional Development Banks).

The medium term prospects are not very good. The level of activity of the electrical industry responds to the general

economic situation with a delay of two or three years. This means that the present financial crisis in the Developing Countries, as well as the slowing-down of the French electrification program will affect A.A. activities in 1985.

MALICO was created at the end of the sixties. It was based on a new conception of one precise fitting: an easy-to-use tension clamp for bare and insulated conductors. In order to sell this product to the French EdF, the powerful public utility, MALICO had to accept that this product became the French "standard", and not to take any patent on the design of the fitting itself. Mr LIENART, the President of this company, described the evolutions that he planned. Two sister companies were created later, both as subcontractors of MALICO. ALUTEC is an aluminium foundry (40% of its sales to MALICO). PLASTITEC, which began its activities in February 1984, produces plastic devices (90% of its sales to MALICO today, but a greater diversification is a short term objective). The total employment figure is 90. The agregated value is FF 35 million, of which 20 million for MALICO itself and 15 million for the sister companies. Exports represent 36% of total sales (excluding taxes). Nearly all exports are made towards Developing Countries.

These two companies (A.A. and MALICO) represent the two extremes in the spectrum of those we studied. Thus, they may be considered as particulary interesting. Nevertheless, our analyses are based on a larger sample (see Appendix: list of companies).

4.Organization of the production.

The existence of large industrial groups appears to be inevitable in the electrical industry. Concentration is an objective of these groups, with the target of reaching an "economic size" (both financial and industrial) that appears to be the "sine qua non" condition to be able to compete on the world market. Only a dozen large industrial companies exist in the world. With the recent deal with BROWN-BOVERI, the Swiss concern, A.A. took the command in Compagnie Electro-Mécanique (C.E.M.). This is a good example of this "horizontal" integration made in the branch.

On the other hand, Mr LIENART told us that the C.G.E. intended, a few years ago, to produce the same fittings that MALICO developed. It was a failure. These products are not easy to sell. It is necessary to have "commercial flexibility", that is to say to accept all the requirements of the "customer", mainly EdF at the beginning. Only the little companies have this flexibility. Specialized on one sole product, MALICO does not want to develop itself by diversification. On the contrary, the creation of the two sister companies, mentioned above, was clearly an "upstream" diversification: ALUTEC and PLASTITEC replace subcontractors.

The contradiction between these two points of view is only apparent. When an official of A.A. talks of electrical "products", he refers implicitly to a complete 10 MVA gas-turbine generator, a 600 MVA turbo-alternator group or all the equipment for a 400 kV substation... These "products" can be made only in large plants;

they can only be sold by a company which is able to negociate for a long time, to "build" a financing scheme, etc. Even in large companies there is a tendency towards "deconcentration" of the production, that is to say, the different plants are specialized either on the production of one precise component or are only assembly lines. The product to which MALICO refers itself is a precise one, bought either by the utilities or by general contractors. The above mentioned differences on the way the organization of the production is presented, are worth noting, in particular when one considers the process of industrialization in Developing Countries. The development of the electrical industry in a Developing Country is not limited to the large plants that are necessary for the production of high range power plant equipment. A lot of "products" can be made in little companies. The industrialization process includes the development of the small-scale industry even in the highly concentrated electrical industry. The consequences on the conditions of the Transfer of Technology are important and will be presented later.

5. Technological evolution.

Technological changes in the electrical industry are slow. The main direction in which technical progress is desired is the growth of yields. The growth of the size of the equipment is not an objective in itself, the "size-effect" is not a "law". The large sizes are taken into account in so far as they lead to better yields. On some precise products, like fittings (MALICO's easy-to-use clamp) or circuit breakers (vacuum or SF6 breakers), there can be some technical breakthroughs. But the principles of

the equipment used for the production, transformation, transport and distribution of electrical power have not changed since the beginning of the industry. Some important progress is being made in the material used: an important part of the R&D of the French companies is spent in metallurgical research.

Furthermore, there are some purely "commercial" innovations. Some companies develop "new" products in order to offer something different from what the competitors have. But the product in itself has not changed.

Apart from the better yields, the main technological changes in the electrical industry, cannot be seen in the products but in the production process. Some poeple think that this could be the way to develop "appropriate" technology for the Developing Countries. The change would not be in the product, but in the process of production (which would be more labour-intensive than what exists in Industrialized Countries).

Exports,and in particular exports to the Developing Countries, are vital for the French electrical companies. Today, the cost of the development of a new product cannot be amortized with the sales on the French market only. The consequence of the relative importance of the costs of R&D in the electrical industry is that Developing Countries do not have short term opportunities to reach the total mastering of the technologies. The research on cryogenical alternators is so expansive that the French industry cannot develop them at the pace it would like to. No Developing Country, even the New Industrialized ones, can afford such

investment in R&D today. The technological gap will not disappear in the next few years.

6. Exporting to the Developing Countries.

The importance of exports to Developing Countries has already been presented for two companies. If we consider a sample of 14 companies for which we have precise data, exports always represent more than 10% of the sales (with one exception: a company producing a device for which the lack of competitiveness of France is well known). Exports represent more than 25% in 6 companies. All companies of this sample export to the Developing Countries. The share of Developing Countries in sales abroad is often important: more than 25% in eight cases (out of a total of 13 "exporting" enterprises). This part is over 50% in 4 companies.

Two main explanations are given to justify the important role of Developing Countries as customers of the French electrical industry. They appear to be apparently contradictory:

. facing a plummeting market in their own country and in other Industrialized Countries, companies feel the necessity to diversify. Developing Countries' markets are then explored, with the hope they will "compensate" the losses in the "North".

. when a company, in particular if it is small scale one, begins to export, it is easier to do so to Developing Countries: in that case, there is no technical protectionism.

The second reason is less often presented than the first one. It can be assumed that technological protectionism does not affect large companies in the same way as small scale ones. The role of the standards in the competition is important for products like fittings; it is nil in the case of a turn-key power plant.

Some officials say, on the other hand, that it is much more difficult to export to Developing Countries than to Industrialized ones , in particular because of the delays the company has to accept (long and costly negociations, large delays for the payment, etc). In all the cases, officials insist on the importance of a good commercial network in Developing Countries, the financial problems which have to be solved (even before the present crisis) and the necessity of having a positive "image" (French industry wants to appear as a high-quality producer).

The competition in these markets is generally limited to companies coming from the "North". When there is a local producer, it is generaly "protected", and direct exports become nearly impossible. As it will be seen later this is one of the main reasons for the proposal of Transfer of Technology: to become the partner of this local pruducer. Training (of the possible users of the equipment) is considered as a very good commercial long term action.

Developing Countries have a growing importance for the French electrical industry. Within this group of "customers", a trend seems to appear in relation with the geographical breakdown. The

traditional orientation of the French industry towards French-speaking Africa, North-Africa and Middle-East still exists. But on the list of the main customers of many companies, new countries appear: in Latin America and even in Asia. This is recent and seems to be a more realistic approach: the most dynamic markets for electrical power equipment are in the "New Industrialized Countries" that belong to these two continents.

7. Transfer of technology and technical collaboration.

MERLIN-GERIN is one of the most important producers of electrical switchgear equipment. The total group employment figure is about 15 000 (8 500 for the parent company). Sales, in 1982 were 5.1 billion francs of which 2.4 were exports. This company has 21 licencing arrangements in 15 countries, mainly Developing Countries. All these deals included a transfer of Know-How. MERLIN-GERIN has no joint ventures and the companies in which it has a majority share in Developing Countries are only commercial ones; they do not have production activities (except, in a few cases, assembly of imported items). MERLIN-GERIN has a minority share in the capital of some companies in Third World countries, in particular when it was necessary to prove to the partner that MERLIN-GERIN intended to really transfer its technology. In that case, the investment made by the owner of the technology is considered by the entrepreneur of the Developing Country as a sort of test. Some Franchising agreements have also recently been concluded in Developing Countries.

The total number of deals concerning transfer of technology with Developing Ccuntries is said to be more than 100 in ALSTHOM-ATLANTIQUE. All the possible ways for transferring technology have been used: from a simple licencing agreement (which always includes a transfer of Know-How and/or training of personnel of the partner) to a majority share in a company that produces equipment. Recent exemple of deals with Developing Countries are:

. 3 licencing agreements and one joint venture in Brazil, with private investors,

. 2 joint ventures in Indonesia, one with a private investor, the other with a public group,

. 2 licencing agreements and 2 joint ventures in India, all of these with private partners,

. 2 licencing agreements in Korea, both with the private sector.

MALICO has neither licencing agreement (there is no patent even in France on the design of its product) nor investment in a Third World country. Nevertheless, MALICO is giving technical assistance to a public company in Tunisia for the development of the production of MALICO's type fitting. The manager intends also to carry out a transfer of technology to Indonesia in the near future.

In the above mentioned sample of 14 French companies, 8 of them have already experience in the transfer of technology to Developing Countries. A ninth company is also beginning an

operation of technical collaboration in a Developing Country. In fact, the main conclusion is that, even if limited, there is a French experience of industrial relations with Developing Countries. All the judical forms for this collaboration are used, but French companies appear to be reluctant to invest directly in the Third World (they have much more direct investment in Industrialized Countries). The reasons for this weak enthusiasm for the control of the production abroad are probably difficult to analyse (historical reasons mainly). It is paradoxical that in some countries like India, French companies are being asked, by their partners, to take a share in Indian companies, while companies coming from other Industrialized Countries are being asked by the Indian Government to reduce their share.

The product that is tansferred by the companies is identical to the one made in France, at least to the product previously exported to the country of the partner (this restriction is related to the eventual "tropicalisation" of some electrical products). In the field of electrical equipment, it can be said from the French experience that there is no need for adaptation of technology. In some cases, the productio.. process is modified, generally in the sense of a more labour intensive process than the one existing in France. Even this adaptation is reported to be scarce: the companies say that Developing Countries want acess to the most "up-to date" technology, including the production process itself.

The main reasons that are given by the companies for their industrial collaboration in Developing Countries is that this

gives access to the markets. It is always said that direct exports are better for the company than local production (in the case of the electronics industry, the answer would not be the same: "delocalisation" of the production is not today a characteristic of the electrical industry). Thus, what determines the precise moment at which the company takes the decision to propose a transfer of technology or to accept the demand that it received? Two main reasons are given by the companies:

. the first one is the existence of laws or regulations that limit or prohibit imports of the products that the country intends to produce itself. In that case, it is better to transfer technology and continue for some years to export components than to see exports cease completely.

. the second reason, the one that obliges the company to make the transfer, sometimes more rapidly than it wanted to, is related to the proposals made by the competitors. Generally, a "newcomer" is ready to make better offers in the country in which it wants to get a share of the market. Today, this better offer is not always made through lower prices of exported products, it can be made accepting a quick process of transfer of technology. This is warmly received in most of the Developing Countries.

The steps followed by a given company, before it begins to co-operate in Developing Countries, are: first to produce for its national market, then to export to Industrialized and Developing Countries and, finally, to transfer its technology for local production. Even if a majority of the companies consider that technical collaboration with Developing Countries has a positive global balance, delocalisation of the production is not an

objective in itself. In the balance of the pros and cons made by the companies, some advantages appear often: the presence on the market, the possibility of exporting components or thanks to the presence through the transfer of technology the possibility of exporting other products made by the company in France. The access to other markets through this process is scarcely mentioned: ASEAN or Andean Pact, for instance, are not estimated to be very effective. Only a few companies say that transfer is a good financial operation in itself: lump payments and royalties are said by a large majority of companies, to be insufficent, the duration of the licencing agreements is said to be too short and not even to pay the direct costs of the process of transfer of technology (travel expenses, cost of translation of the blue-prints, and so on)...

Some companies say they do not accept even the principle of industrial collaboration with some of the Advanced Developing Countries like, for instance Korea. The official reason is that the local partners cannot be trusted; the real reason, as far as we understand, is that the officials of these companies are afraid of the rapidity of the local industry to master the technologies that is transferred there: within a few years the partner becomes a competitor even, sometimes in the French market itself. Others officials, nevertheless, say that they are ready to co-operate with any country. Some say they consider working with Korea, just like working with any Industrialized Country; other say that Korea is still a Developing Country and that the risk of helping a future competitor is not real, at least in the short term. These differences in the analyses made in the French electrical industry

are interesting: those who are afraid are working in companies that have no technological leadership in their branch, or in little companies which have one sole production. Those who are not afraid of the dynamism of a country like Korea belong to companies in which either the minimum economic size for high tech production is reached, or the investment in R&D is such that the company thinks it has the means to maintain a technological gap even if it gives the licencee the latest technology. Knowing that in Developing Countries the R&D investment cannot be made, the day the partner in the Developing Country completely masters the technology, the French company hopes to be ready to produce with an improved technology.

Local partners generally are chosen by the company that realizes the transfer. In most cases, they are known through the importer of the products of the company. If this importer has some industrial abilities, he often becomes the main partner in the industrial venture that is created for local production.

The main condition that the companies we have interviewed see for the sucess of an operation of co-operation in a Third World country is to meet a "serious' local partner in a "sufficent" market. From that point of view countries like India, China, Mexico or Indonesia are often chosen by the French industry: the local market is huge and the industrial history of these countries is such that it is not difficult to meet industrial entrepreneurs, with whom transfer of technology can be made in clear and simple ways. Furthermore, in these "big" Developing Countries, the local

needs are such that exporting the products made with a recently adquired technology is not a priority. This is also interesting from the point of view, above mentioned, of not creating a competitor in third markets. This explains that a company like MERLIN-GERIN, after a first failure of technical collaboration with India, decided recently to look for a new agreement with the TATA group in order to boost Indian production of SF6 circuit-breakers. This deal would impose SF6 technology in India and MERLIN-GERIN would gain an advantage over its competitors (Germans) who produce switchgear apparatus based on the "vacuum" technology.

The demand of technology of the Developing Countries is growing. One official of a French company says that the less industrialized the country is the more inflexible its technological policy is. Thus, this company is only looking for industrial co-operation with Advanced Developing Countries (Brazil, India, Mexico, Egypt, Algeria were quoted) where regulations concerning the transfer of technology are more "effective". Other companies say that they do not distinguish between Developing Countries, except on the basis of the size of the market for the product they intend to transfer.

Excluding any possibility of international subcontracting and re-export from a Developing Country, the French companies say they cannot accept any production in small countries with small markets. A project like producing distribution transformers in Tanzania (made by SIEMENS of RFA) is a-priori inacceptable for a French company.

The world organization of the production will be changed by this process of industrialization in the Developing Countries. But companies still think that the electrical industry will face a growing demand, even if financing problems are slowing down the electrification programs today. The capacities of the plants that are installed in the Developing Countries are lower than those in France. Even when these capacities are fully utilized they do not change the general balance of the shares of production in the world industry today. Moreover, this change will be slower in nuclear high-tech componants than for simple Low and Medium Tension switchgear. The "feed-back" effect of the development of electrical industry in new countries will appear sooner in small scale companies or in those which have no technological advance than in large companies or in those which are able to keep their technical advance. The first group of companies consider industrial collaboration with Developing Countries as an unpleasant necessity; the second group, as a part of the global corporate strategy for the development of the company, in given conditions (the willingness of some countries to develop their own electrical industry).

Before deciding on a transfer of technology in a given Developing Country, the managers of the companies we studied did not make any detailed study on the technical environment (the existing facilities for subcontracting some tasks on the local market). Two reasons are given: firstly, if there is no possibility of subcontracting in the country, the company will have an opportunity to earn money through exports of some components, without feeling guilty for the planning errors of the

host country. Secondly, the general knowledge of the country is sufficent: it is known that good foundries can be met in Indonesia, and none in Nigeria; this is the reason why a compnay accepted a transfer in the first country and refused it in the second one.

8. South-South relationship.

No French company in our survey was aware of the existence of technical exchanges between Developing Countries. Mr STRACK (A.A.) mentioned the barter deals between Brazil and Nigeria as an example of a new means for international commerce, in a period when all the countries need cash. But, these deals concern manufactured products and not technology. Technological self reliance of the South appears to the french electrical companies as a long term objective, without any example up to now.

9. Conclusion.

This report is a synthesis of the results of a great number of interviews carried out by the personnel of the IREP in 1983-84. It claims to give a "mean" point of view of the opinions of the persons we have met. Where opinions appeared to be very divergent, we have presented the two main points of view. The questionnaire drawn up at the end of 1983 was a good guideline during most of the interviews. It would be interesting to test its effectiveness in another Industrialized Country, France being an easy example

for testing a questionnaire drawn up by a French expert.

This text is a preliminary draft. The author is ready to revise it and to complete it, taking into account all the commentaries and the suggestions that may be made by the Secretary of UNIDO.

Pierre VERNET

APPENDIX

APPENDIX #1

QUESTIONNAIRE FORM USED FOR THIS ENQUIRY

1. Présentation de l'entreprise.

- Nom de l'entreprise.
- Nom et fonction de la (des) personne (s) interrogée (s).
- Groupe dont fait partie l'entreprise.
- Nationalité du groupe (ou de l'entreprise si elle est indépendante).
- Principales productions de l'entreprise (quantité physique et valeur si possible) ; évolution de la production sur les 5 dernières années.
- Filiales - liste avec
  + nom, participation au capital,
  + activité,
  + implantation,
  + emploi,
  + date de création,
- Chiffre d'affaires 1982, par entreprise et consolidé ; évolution depuis 10 ans, part du marché national et part du marché mondial sur les principales productions,
- Emploi total du groupe.

2. Organisation de la production.

- Nombre d'établissements appartenant à l'entreprise elle-même.
- Pour chacun :
  - + implantation,
  - + taille (emplci),
  - + principales productions.
- Concentration économique et financière.
  - + La constitution de grands groupes apparaît-elle comme une tendance inéluctable dans la branche ?
  - + Principales raisons de la concentration dans la branche (classer)
    - ☐ Augmentation de la "surface" économique.
    - ☐ Augmentation de la "surface" financière.
    - ☐ Faciliter l'accès aux marchés internationaux.
    - ☐ Meilleure utilisation de capacités productives existantes.
    - ☐ Autre (préciser).
  - + S'agit-il surtout de concentration "verticale", "horizontale" ? (*).
  - + Existe-t-il des rapprochements avec d'autres secteurs industriels ? Plutôt vers l'amont (fournisseurs), l'aval (clients) ou encore au même niveau (dans une activité complémentaire) ? Les raisons de tels rapprochements sont-elles plutôt techniques ou plutôt financières ?
  - + Ces mouvements de concentration favorisent-ils une délocalisation de la production vers l'étranger, notamment les pays en développement ?

(*) Verticale : pour maîtriser les différentes étapes de la fabrication d'un produit ;
Horizontale : pour élargir la gamme par des productions complémentaires dans la même branche.

3. Evolutions technologiques.

- Evolutions dans la production.
  + Constate-t-on une tendance à la déconcentration de la production : unités spécialisées et/ou recours croissant à la sous-traitance ?
  + Si oui, pour quels matériels ?
  + Existe-t-il une tendance à la spécialisation de l'établissement principal dans les productions nécessitant des technologies sophistiquées ?
  + Si oui, les produits de conception simple sont-ils abandonnés, produits dans un autre établissement du groupe, cédés à un licencié (avec ou sans lien financier avec le groupe) ?
- Quelle paraît-être la tendance générale de l'évolution technologique dans la branche ? Ces évolutions sont-elles rapides ?
- Quelles en sont les limites : taille des équipements (puissance ou tension) ou limites économiques (préciser).
- Ces limites sont-elles les mêmes dans les pays industrialisés et les pays en développement ? Si non, parmi les pays en développement, peut-on établir des groupes correspondant à dif'érentes limites technico-économiques ? (notion de taille minimale du marché des pays en développement).
- Le coût des innovations est-il amorti en général :
  + sur le marché national ?
  + sur le marché des pays industrialisés (y compris Europe de l'Est) ?
  + ou bien, faut-il aussi pouvoir vendre dans

les pays en développements ?

- Conséquences des caractéristiques du progrès technologique dans la branche (investissements lourds de R.D.) sur :

  ▱ L'organisation de l'industrie au niveau mondial ?

  ▱ L'entrée éventuelle des pays en développement dans la production ?

4. Exportations vers les pays en développement.

- Exportations :

  + Part des exportations dans le chiffre d'affaires (5 dernières années).
  + Part des pays en développement dans les exports (5 dernières années).
  + Principaux marchés (pays). Evolution de l'importance relative de ces marchés depuis 10 ans.
  + Quelles sont les caractéristiques particulières de l'exportation vers les pays en développement ?

    ▱ Rôle du financement.
    ▱ Opérations avec ingéniéries ou ensembliers.
    ▱ Spécifications différentes des produits.
    ▱ Autres (préciser).

  + Part des exportations vers les pays en développement liée :

    ▱ A l'aide bilatérale (du pays de la firme).
    ▱ Aux financements multilatéraux (BIRD, banques de développement, etc..).

  + L'exportation vers les pays en développement comptense-t-elle un certain tassement des ventes dans le pays d'origine et dans les marchés des pays industrialisés ?

- Concurrence sur les marchés des pays en développement.

  + Cette concurrence est-elle surtout le fait :

    ▱ De firmes originaires de pays industrialisés ?

    ▱ De firmes originaires de pays en développement (locales ou tierces) ?

  + Sur quoi joue principalement la concurrence ? (classer).

    ▱ Qualité des matériels.

    ▱ Prix.

    ▱ Normes.

    ▱ Technologies définies par le prescripteur.

    ▱ Conditions de financement.

    ▱ Autre (préciser).

  + Les conditions de la concurrence sont-elles les mêmes dans les différents pays en développement ? Si non, préciser les différences par quelques exemples.

  + Pour améliorer la position sur les marchés des pays en développement, les mesures suivantes apparaissent-elles opportunes ? (Si oui, les classer).

    ▱ Formation de personnel d'exploitation (dans les compagnies de production et distribution d'électricité).

    ▱ Formation de personnel d'entretien du matériel électrique.

    ▱ Formation aux fonctions de prescripteur.

  + Dans l'affirmative, l'entreprise peut-elle participer à ces formations ? Lesquelles ? Dans les autres cas qui doit participer à ces formations ?

- Prévisions d'évolution des marchés des pays en développement (Quels pays ? Quels produits ?).

5. Transfert de technologie et coopération industrielle.

- En dehors des filiales déjà présentées (au § 2.1.), liste des accords de transfert de technologie, d'assistances techniques, de participations minoritaires, etc. dans les pays en développement en précisant à chaque fois :

  + pays,
  + partenaire local (préciser notamment s'il relève du secteur privé ou public),
  + produit (s) faisant l'objet de l'accord,
  + capacité (s) de production et production effective,
  + type de participation de la firme.

- Modalités du transfert de technologie. Dans le cas où l'entreprise a effectué des transferts de technologie (y compris à des filiales) dans les pays en développement,

  + S'agit-il de produits identiques à ceux qui sont produits dans l'entreprise ? Si non, expliquer les différences.
  + Est-on prêt à transférer l'ensemble des technologies maîtrisées par l'entreprise ? Si non, préciser quelles productions seront "gardées" et pourquoi ?
  + Quelles sont les formes juridiques de transfert les plus souvent utilisées :

    ☐ Simple cession de licence.
    ☐ Cession de licence avec assistance technique.
    ☐ Contrat "clé en main".
    ☐ Contrat "produit en main" avec formation.
    ☐ Joint-venture ou filiale minoritaire.
    ☐ Filiale majoritaire.
    ☐ Autre (préciser).

+ Les opérations de transfert de technologie ont-elles été menées avec une assistance extérieures à la firme ? Si oui, laquelle ?

- Motifs principaux des implantations et des transferts de technologie dans les pays en développement.

  ▱ Production pour le marché local dans le cadre d'une stratégie d'ensemble de la firme.

  ▱ Production pour le marché mondial avec des coûts plus faibles.

  ▱ Incitation des pouvoirs publics locaux (protectionnisme intégration locale, etc..).

  ▱ Attitudes de la concurrence réalisant de telles opérations.

- Comment ont été choisis les partenaires locaux ?
- Pour les relations industrielles avec les pays en développement, l'entreprise a-t-elle dû se doter de moyens spécifiques ? Si oui, lesquels ?
- Le transfert de technologie s'est-il accompagné de modifications importantes des caractéristiques des produits ? Si oui, lesquelles ?
- Y a-t-il eu un effet en retour du transfert de technologie,

  ▱ sur la maîtrise technologique propre de la firme ?

  ▱ par accès à des modifications de la technologie ?

  ▱ sur le niveau d'activité des productions liées ?

- Attitude de la firme face au transfert de technologie.

  + <u>En dehors</u> de filiales contrôlées majoritairement, l'entreprise a-t-elle proposé de sa propre initiative des opérations de transfert de

technologie ? Si oui, pour quelle (s) raison(s) ? Dans quel (s) pays ? Pour quel (s) produit (s) ?

+ L'entreprise a-t-elle reçu récemment des demandes de transfert de technologie ? Si oui, de quel (s) pays pour quel (s) produit (s) ? Quelle est la réponse envisagée et pourquoi ? Les réponses seraient-elles identiques pour tous les pays en développement ? Si non, pourquoi ?

+ Ces demandes proviennent-elles directement de firmes de pays en développement ou ont-elles été suscitées par un tiers ? Dans le second cas, lequel ?

- Evaluation.

. Principaux obstacles à la réussite d'une opération de transfert de technologie ou de collaboration industrielle avec les pays en développement.

. L'ensemble de ces opérations de collaboration technique apparaît-il positif ?

. Classer les principaux avantages :

- ☐ Accès au marché local.
- ☐ Accès au marché régional (1).
- ☐ Rentabilité immédiate ("lump paiment").
- ☐ Rentabilité à moyen terme (royalties).
- ☐ Ventes de composants et sous-ensembles.
- ☐ Ventes d'autres produits de la firme.
- ☐ Autres (préciser).

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(1) CEAO, Pacte Andin, ASEAN, MCCA, etc...

. Classer les principaux inconvénients :

- ☐ Fermeture du marché aux exportations.
- ☐ Création d'un concurrent par les marchés tiers.
- ☐ Non-rentabilité.
- ☐ Coût d'approche trop élevé.
- ☐ Autres (préciser).

. Ces avantages, ces inconvénients sont-ils identiques pour tous les pays en développement ? Quels sont les problèmes spécifiques rencontrés dans certains pays (préciser par des exemples) ?

- Perspectives.

+ Les demandes de coopération industrielle des pays en développement vont-elles s'amplifier ? Pourquoi ?
+ Peut-on dire que l'attitude des pays en développement dans leurs relations avec les firmes des pays industrialisés tend plutôt :

- ☐ A s'assouplir ?
- ☐ A se durcir ?

+ Parallèlement, la concurrence entre grandes firmes du secteur paraît-elle intégrer de plus en plus l'offre de coopération industrielle aux pays en développement ?
+ Quels sont les pays les plus concernés par le transfert de technologie et la coopération industrielle ? Pourquoi ?
+ Ce mouvement paraît-il devoir affecter rapidement la répartition de la production mondiale dans la branche ou bien restera-t-il marginal par rapport à la production dans les pays industrialisés ?

+ Dans ce contexte, coopérer durablement avec des firmes originaires des pays en développement ou implanter des filiales dans ces pays apparaî-il plutôt :

  ☐ Comme un mal nécessaire ?

  ☐ Comme une opportunité de "replacer" la firme sur des "crênaux", des technologies plus dynamiques ?

6. Relations technologiques "Sud-Sud".

- Avez-vous constaté, dans la branche, des échanges techniques entre pays en développement ? Si oui, lesquels et pour quelles fabrications ?
- S'agit-il de produits qui figurent dans la gamme de production de la firme ? Celle-ci aurait-elle pu réaliser ces opérations de transfert de technologie ?
- Ces échanges "Sud-Sud" paraissent-ils devoir s'intensifier ? S'agit-il d'une "concurrence" devant être prise en compte par l'entreprise ? Si oui, comment ?

ADDITIF AU QUESTIONNAIRE D'ENQUETE

AUPRES DES CONSTRUCTEURS

Les questions suivantes sont à insérer dans le § 2.5. intitulé "transfert de technologie et coopération industrielle".

- Organisation technique de la sous traitance internationale.

+ La production peut-elle s'organiser sur la base d'une sous traitance internationale?

+ Si oui, quels sont les produits donnant lieu à une sous traitance internationale?

+ Quel est le niveau de complexité technique de ces produits?

+ Quelles sont les raisons ayant prévalu à une délocalisation dans le cadre d'une sous traitance internationale (accord de compensation, coût de la main d'œuvre,...)

- Maitrise technologique et environnement des PVD.

+ Le niveau d'industrialisation et de maitrise technologique dans les pays où vous avez opéré un transfert de technologie influent-ils sur le contenu du transfert (nature des produits transférés, niveau technologique de ces produits)?

+ Sur cette base, quel classement établissez-vous entre les PVD?

+ Quels produits et quels niveaux technologiques correspondent aux différents niveaux d'industrialisation des PVD selon votre classement?

+ Quelles sont les infrastructures minimum nécessaires pour l'organisation de la production d'un produit donné dans les PVD? Dans le cas où la nature de ces infrastructures diffère selon le niveau de complexité technologique des produits, pouvez vous en établir un classement?

+ Si certaines infrastructures font défaut, quel est le choix effectué:
- augmenter le taux d'intégration de l'unité de production?
- promouvoir une opération de transfert de technologie, dans le pays, de l'un (ou de plusieurs) sous traitant(s) habituel(s) de l'entreprise?
- autres choix?

APPENDIX # 2

LIST OF COMPANIES AND POEPLE MET BY THE IREP TEAM

FOR THE INQUIRY ON ELECTRICAL POWER EQUIPMENT INDUSTRY.

Note: Personnel of the IREP in charge of this enquiry was:

Jean Raphaël CHAPONNIERE

Alain GAULE

Raphaël TIBERGHIEN

Pierre VERNET

Most interview were made with two members of the IREP, for a better effectiveness.

The inquiry was made during the year 1983 and the first half of 1984.

NAME OF THE COMPANY	NAMES AND FONCTIONS OF THE OFFICIALS MET
ALSTHOM ATLANTIQUE	M.CHALVON-DEMERSAY, advisor of President M.J.STRACK, vice president international investment
MERLIN GERIN	M.BRUN-BUISSON, vice president international affairs MM.BRACONNIER, DYE, GARNIER, LECRET and MENEZ, in different divisions
MALICO	M.J.P.LIENART, president-foundator
GARDY	M.HARTMAN, export manager
TRANSUNEL	M.LA COFERETTE, general manager
COGELEX	MM.CLARENNE, BRECHON, GIGNY, export division
SIMEL	M.DUPRIE, export manager
PETITJEAN	MM.THEURREAU, SPONARD, export division
LEROY-SOMMER	MM.FLATET, BONADE, export
TRINDEL	M.LE DOUARIN, export manager
LEGRAND	M.CLEMENT, export manager
MECELEC	M.BOQUET, export manager

MAIL-INQUIRY (end 1983)

MOTERMIC	M.J.C.BOCHET, president and general manager
SODILEC	M.G.RINGEVAL, commercial manage.
MECELEC	M.HAIBLET, in charge of exports
METRIX	M.BARDOUX, marketing director
AOIP	M.TEMAN, chief measurement exports
FORCLUM	M.P.SCHNEIDER, export manager
CGEE-ALSTHOM	M.P.IRION, finance and tax manager M.C.LAMBERT, commercial export manager
P.FONTAINE S.A.	M.P.FONTAINE, president-foundator
SOCOMEC	M.B.SIAT, general manager
CAPRI-CODEC S.A.	M.Ph.AYMOUNIER, export manager
GARDY	M.P.GENESTE, export manager
LEGRAND S.A.	M.B.VERPIEREN, export manager
ALSTHOM-ATLANTIQUE	M.A.GUYET, vice-manager international affairs
TELEMECANIQUE	M.P.GENTIL, manager international division