

SOCIEDAD ESPAÑOLA DE PSICOLOGIA

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DOMICILIO SOCIAL:
 INSTITUTO DE ORIENTACION EDUCATIVA
 Y PROFESIONAL
 JUAN HUARTE DE SAN JUAN, 1
 Ciudad Universitaria
 MADRID - 3

Madrid, 27 de febrero 1982

Prof. Dr. H.Scholz
 Ardeystr. 67
 D-4600 Dormund 1
 Alemania Federal

Muy Sr. nuestro:

Contestamos su carta del 21 de enero pasado con algún retraso; éste ha sido debido a la necesidad de estudiar, con vistas al nuevo año económico, la cuantía de las cuotas destinadas a asociaciones científicas internacionales.

Sentimos mucho informar a ustedes que después de considerarlo detenidamente, hemos decidido causar baja en esa Asociación, ya que nuestra economía no nos permite hacer frente al aumento considerable de las cuotas aprobadas últimamente.

Con esta fecha solicitamos de nuestro Banco un cheque a su nombre por los SFr. 100 de 1979, rogándoles la baja a partir de 1980.

Les saluda atentamente,


 Modesto García Barrientos
 Tesorero

1er Juillet 1982

S.C.A.C. Voyages
105 avenue du Maine
75014 PARIS

Messieurs,

Vous avez bien voulu, au compte de l'ONSER, me procurer un billet d'avion pour divers pays d'Asie et me réserver une chambre d'hôtel dans différentes villes.

Tout me convient parfaitement sauf la réservation à l'hôtel Las Palmas à Manille que je vous demande d'annuler.

Veillez agréer, Messieurs, avec mes remerciements, l'expression de mes sentiments les meilleurs.

A. Wisner



LE
C VOYAGES
RIEDLAND
URSALE MAINE ALÉSIA
3. JUIN 1982
AVENUE DU MAINE
PARIS. Tel. 320.12.25

HOTEL LAS PALMAS
1616 A. MABINI , MALATE
MANILLE PHILIPINES
TEL : 506661

IS-ROYAL
onore

Votre accord :
Your agreement :

NCES
las
RNASSE

Messieurs,
Dear Sirs,

RT
aulle

Nous vous présentons MR ~~WIXSE~~ WISNER

ONE personne(s)
ONE person(s)

This is to introduce M

auquel/auxquels nous avons recommandé votre Etablissement et pour qui vous avez bien voulu réserver

to whom we have recommended your firm and for whom you have kindly reserved

LOUD
e
incourt

ONE SINGLE ROOM WITH BATH
AT THE PRICE OF U.S.D 27 + 10% TAXES + 10% SERV.
ARRIVAL BY FLIGHT J.L. 747 AT 2.35 P.M.

aulle

arrivée :

départ :

due to : 02 TH OF SEPTEMBER 82 departure : 12 TH OF SEPTEMBER 82

JLE
enceau

IT-MAUR

aint-Hilaire

ov

Vous remerciant à l'avance de l'accueil que vous voudrez bien lui/leur réserver, nous vous prions d'agréer, Messieurs, l'expression de nos sentiments distingués.

Any courtesy extended to our client(s) will be greatly appreciated.

Very truly yours.

Marignane

D.P.

N.B. : Votre note sera réglée par notre (nos) client(s) directement
Your account will be settled by our(s) client(s) himself/themselves



MINISTÈRE DES UNIVERSITÉS

CONSERVATOIRE NATIONAL DES ARTS ET MÉTIERS

Département des Sciences de l'Homme au Travail
PHYSIOLOGIE DU TRAVAIL — ERGONOMIE

Paris, le 27 Avril 1982

O.N.S.E.R.
ARCUEIL

280482 | 054631

Monsieur Duflot
Directeur administratif
ONSER
Boîte postale n° 28
94114 ARCUEIL CEDEX

Cher Monsieur,

Vous avez bien voulu me faire savoir que la Direction de l'ONSER s'intéressait au voyage que je dois faire en Asie l'été prochain, et qu'elle envisageait d'acquérir pour moi le billet nécessaire.

Je vous en remercie et vous prie de trouver ci-jointe (annexe 1) une fiche correspondant aux divers segments de vol que j'ai prévus, avec leur numéro, leur date et leur horaire.

Par ailleurs, je serais heureux que l'agence de voyage de l'ONSER m'obtienne les visas nécessaires pour les pays suivants : Corée du Sud, Japon, Philippines, Singapour, Thaïlande. Il me semble qu'aucun visa n'est nécessaire - étant donné que je suis Français et que je fais des séjours courts - pour le Japon, Singapour et la Thaïlande.

Je serais heureux également que l'agence de voyage retienne une chambre pour une personne dans les hôtels qui figurent sur l'annexe 2, pour les nuits indiquées. Pour mon séjour au Japon et à Singapour, l'hôtel sera retenu par les organisateurs de la réunion.

Veillez agréer, cher Monsieur, avec mes remerciements, l'expression de mes sentiments dévoués.

*Aucun visa
n'est nécessaire*

A. Wisner

ANNEXE 1

Liste des vols relatifs au voyage de A. Wisner

12 Août - 19 Septembre 1982

Jeudi 12 Août	PARIS (13h20) ^{OK}	SEOUL (15h30) ^{pas de visa}	KE 902
Mardi 17 Août	SEOUL (11h) ^{OK}	OSAKA (12h30) ^{pas de visa}	KE 724
Jeudi 2 Sept.	OSAKA (12h) ^{OK}	MANILLE (14h35)	JL 747
Dimanche 12 Sept.	MANILLE (14h45) ^{OK}	SINGAPOUR (18h)	PR 510
Vendredi 17 Sept.	SINGAPOUR (17h) ^{OK}	BANGKOK (18h05)	SQ 62
Dimanche 19 Sept.	BANGKOK (23h) ^{OK}	PARIS (8h15)	TG 934

ANNEXE 2

Liste des hôtels à réserver pour A. Wisner

13-17 Août (4 nuits)

X Hôtel SEOUL ROYAL
MYONG DONG
SEOUL (Corée du Sud)
tél. 771.45

2-12 Septembre (10 nuits)

X Hôtel AURELIO
PADRE FAURA/ROXAS Bd.
Tél. 50.90.31 LAS PALMAS
1616 A. MABINI, MALATE
MANILLE

17-19 Septembre (2 nuits)

X Hôtel NARAÏ
222 SILOM Bd
tél. 233.33.50

Bangkok

ou

Hôtel MANOHRA
412 SURIWONGSE ROAD
Tél. 37.076

6 Août 1982

Monsieur Spyropoulos
Chef Département Conditions de Travail
B.I.T.
1211 GENEVE 22 (SUISSE)

Cher Monsieur,

Je vous fais parvenir, ci-joint, le texte correspondant à mon exposé de Singapour.

Je regrette de vous le faire parvenir si tard compte tenu de la traduction à réaliser, mais, comme vous le savez, je n'ai été prévenu que le 29 Juin du thème exact de mon exposé. Or, mes vacances étaient prévues pour Juillet. Bien entendu, je ne ferai un exposé que de la durée qui conviendra aux organisateurs.

Si la majeure partie de ce texte est originale, quelques pages ont été empruntées à des textes déjà traduits en anglais. Aussi, ai-je noté en marge les références. J'ai également joint les textes originaux.

Je serai naturellement très heureux de recevoir le texte anglais dès qu'il sera écrit, à l'une des adresses que je joins dans cette lettre.

Veuillez agréer, cher Monsieur, l'expression de mes sentiments amicaux et dévoués.

A. Wisner

P.J. - texte de l'exposé + 3 figures en anglais
- rédaction de certaines pages en anglais
- projet de voyage de A. Wisner

2 Juillet 1982

Monsieur Spyropoulos
Chef Département Conditions de travail
B.I.T.
1211 GENEVE 22 (Suisse)

Cher Monsieur,

Je vous remercie vivement de votre lettre du 29 Juin et de la confirmation que vous me faites de l'invitation à participer à l'atelier de Singapour.

Le sujet que vous me confiez me convient tout à fait ainsi que l'ensemble des termes du contrat. J'entends bien qu'il s'agit d'un exposé court mais, toutefois, je note que l'ensemble des textes doit ultérieurement être publié. Il m'est donc nécessaire de faire une rédaction correcte sur le thème, qui m'est certes familier, mais que je n'ai guère traité dans les termes où il est posé, et pour lequel j'ai des données récentes en particulier dans le domaine anthropométrique, grâce à l'un de nos collaborateurs tunisiens, Monsieur Sahbi.

Je vais faire tout mon possible pour vous faire parvenir ce texte d'ici le début Août. Malheureusement, ce texte sera en français mais vous avez bien voulu accepter de le faire traduire en anglais par les services du BIT. Il faudra évidemment ensuite le délai d'expédition à Singapour et celui de la reproduction.

Je me permets de vous demander de confier à votre secrétariat une mission modeste mais utile, celle de me réserver une chambre dans la résidence prévue à Singapour pour notre réunion, du dimanche 12 au vendredi 17 Septembre.

Je vous fais parvenir ci-joint un exemplaire de mon projet de voyage en Asie, de telle sorte qu'il soit possible de me joindre en cas de nécessité.

Je vais écrire par ailleurs au Professeur Phoon.

Veillez agréer, cher Monsieur, l'expression de mes sentiments amicaux et dévoués.

A. Wisner

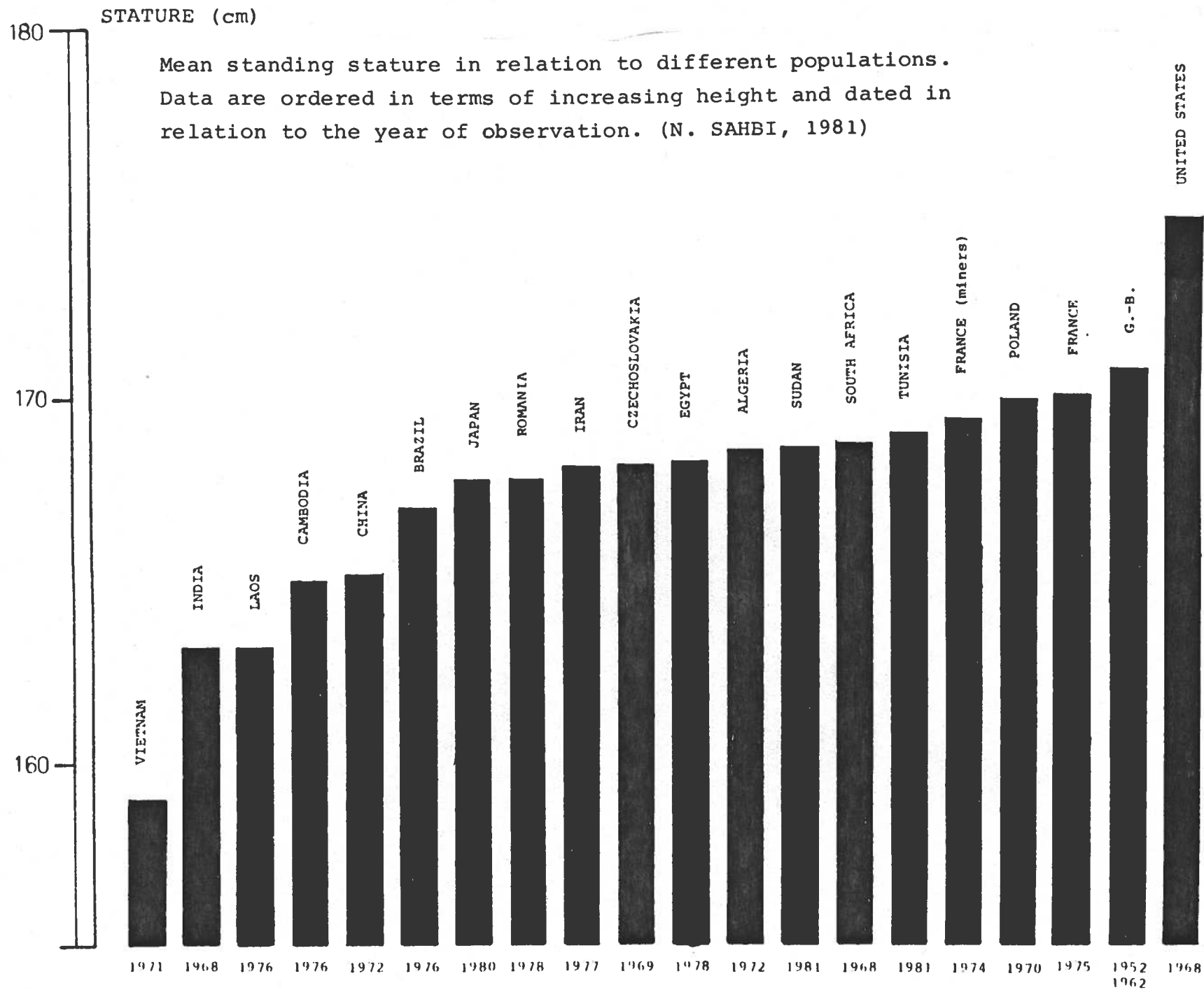
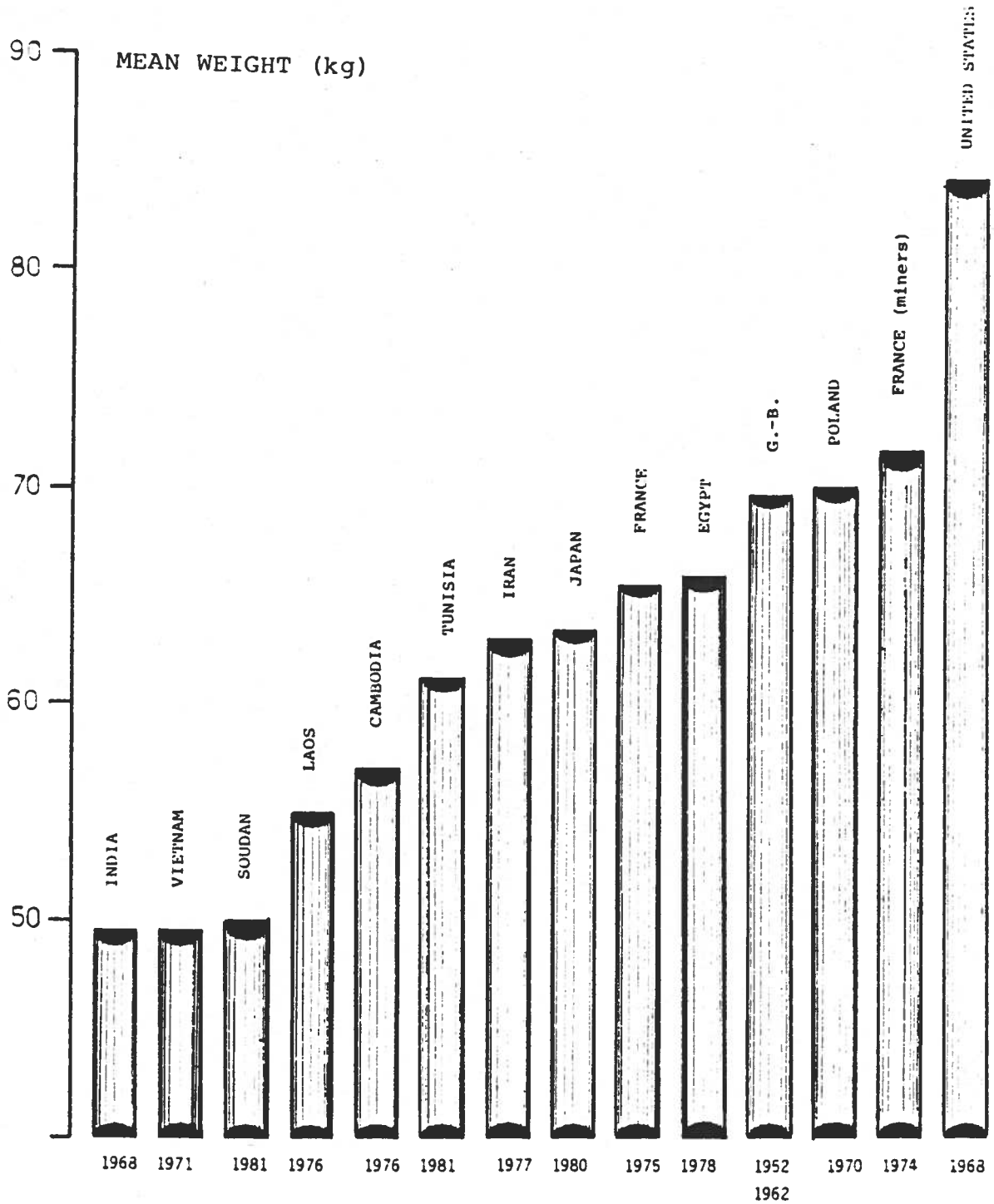
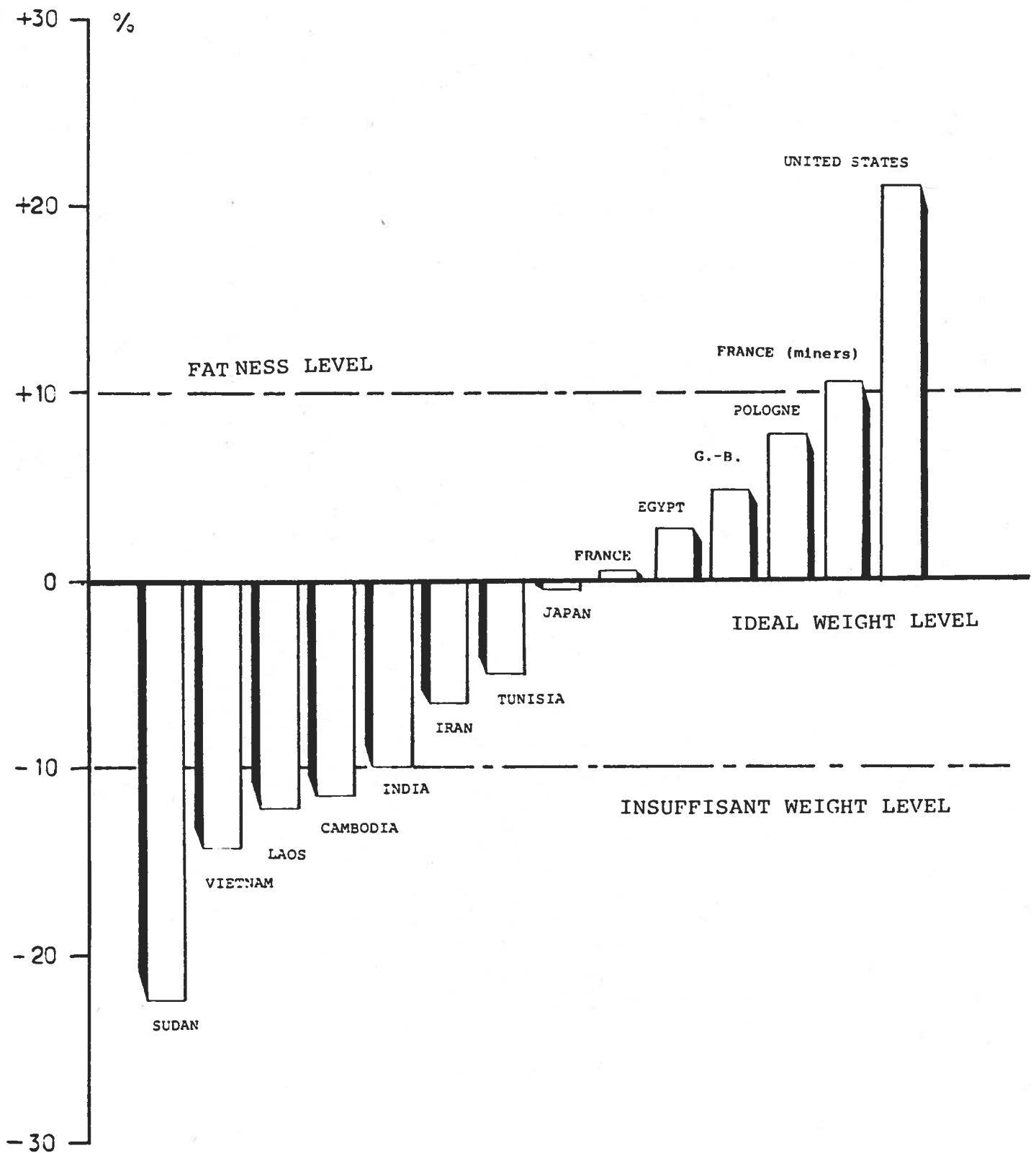


Figure 1



Mean weight in relation to different populations. Data are ordered in terms of increasing weight and dated in relation to the year of observation. (N. SAHBI, 1981)

Figure 2



Ideal weight in relation to standing stature and weight for different populations. Data obtained by LORENTZ formula (standing cm - 150 x 0,75 + 50). (N. SAHBI, 1981)

Figure 3

Minutes of the Executive Committee of
the International Ergonomics Association
held in Geneva (15-16 March 1982)

concerning the International Symposium
on Ergonomics in Developing Countries

1. The meeting was convened by Mr. Georges Spyropoulos, Chief, TRAVAIL Department of the ILO. Those in attendance were Mr. Harry Davis, Secretary General of the International Ergonomics Association, Rochester, N.Y. (USA), Prof. A. Wisner of the Conservatoire national des Arts et Métiers, Paris (France), Prof. H. Scholz, Treasurer of the International Ergonomics Association, Dortmund (Federal Republic of Germany), Dr. M.A. El Batawi, Chief Medical Officer at the WHO, Mr. D. Brown of SEC/HYG, Mrs. Y. Regali of SEC/HYG, and Dr. J.L. Purswell, Chief of SEC/HYG. Mr. Spyropoulos opened the meeting by welcoming the group to Geneva and noting that Prof. Rosner of Poland had visited Geneva during the first week in March because he was unable to attend the present meeting. Discussions were held between Prof. Rosner and Mr. Spyropoulos and Dr. Purswell regarding the possible host countries for the meeting. Mr. Spyropoulos then explained the present situation regarding a host country for the Symposium.

(a) Mexico, the country initially contacted as a potential host for the meeting has not yet been able to provide a definite reply to the invitation of the ILO to host the meeting. The problem for the Mexican Government in reaching a decision is related to the elections taking place during 1982 in the country and the inability of either the current Government or the new Government to officially reach a decision before the end of 1982.

However, Mr. Spyropoulos reported that there was some indication that the current Labor Minister would be continuing in the new Government and he would attempt during his mission to Mexico beginning the last week of March to learn more about the willingness of the Mexican Government to host the Symposium, given that the current Labor Minister will continue in the new Government.

- (b) India was mentioned as a possible host country. The Indians had been invited by the ILO to consider hosting the meeting because of the inability of the Mexican Government to reach a decision regarding hosting the meeting. While no definite commitment had been received from the Indian Government at the time of the planning meeting, it was anticipated that a favourable response might be received in the next few months.
- (c) The Government of Brazil was mentioned as a possible host for the meeting. The Brazilians have a number of very capable ergonomists who work in conjunction with their national centre, FUNDACENTRO, and hosting the Symposium would provide the Brazilians with an opportunity to publicise their expertise in the field as well as the establishment by the ILO of a Latin American Center for Occupational Safety and Health in Brazil.
- (d) Dr. El Batawi noted that Egypt was a potential host country for the Symposium. He indicated that he would be willing to consult with the current Labour and Health Ministers regarding their willingness and interest to

host the Symposium. It was noted that some political problems could exist which would limit the opportunity of representatives from some developing countries to attend the Symposium.

- (e) Prof. Wisner suggested that Tunisia also be considered as a host country for the meeting because of a corps of trained ergonomists in that country.

It was agreed by the group that consideration should be given in selecting a host country to the proximity of the host country to the principal developing nations who are intended to benefit from the Symposium. Mr. Spyropoulos noted that the ILO would spend the major portion of its support for the Symposium in providing for travel and per diem of worker and employer representatives of the developing countries to attend the Symposium. This action would help to assure that the developing countries were fully represented at the Symposium, regardless of the host country ultimately chosen.

Everyone agreed that the choice of the host country was a critical factor in determining the overall scheduling of the meeting. Taking into account the time needed for planning and publicising the meeting, as well as the additional time required to confirm arrangements with a host country, it was agreed that the most likely date for scheduling the Symposium would be late 1983 or early 1984. The planning meeting was then adjourned in Mr. Spyropoulos' office and convened in Dr. Purswell's office.

The title of the Symposium was discussed and it was agreed that it would remain as indicated in the original materials, i.e. "Symposium on Ergonomics in Developing Countries". The group then discussed the principal outcomes expected from the Symposium and agreed that it should accomplish two purposes:

- (a) provide for an exchange of information on ergonomic problems in developing countries.
- (b) identification of the means to apply ergonomics to the problems of developing countries.

Dr. El Batawi noted that the WHO has developed a number of useful publications that would be of assistance in this regard. It was noted that the ILO has a variety of means of action, such as the adoption of conventions and recommendations by the International Labour Conference or the development of codes of practice which require that they be reviewed by a tripartite meeting of experts and in turn approved by the Governing Body. Another means of action is the hosting of symposia to exchange information on a topic, such as the Symposium on Ergonomics in Developing Countries. While various means of promoting/^{the} application of ergonomics to the problems of developing countries are expected to be identified as a result of the proposed Symposium, it is not the intent of the Symposium to adopt specific conclusions and recommendations, since this would ordinarily be the function of a tripartite meeting of experts within the ILO.

The four major themes were reviewed and it was agreed that the themes would be stated as follows:

Theme 1. Role of ergonomics in development.

Theme 2. Action at the level of the industrial undertaking.

Theme 3. Ergonomics in the rural sector.

Theme 4. Education and training in ergonomics.

After some discussion of the advantages of meetings of various durations, it was agreed that the most desirable length for the symposium would be 3 1/2 to 4 days, taking into account the cost involved for the host country and the need to cover a broad range of material. Some of the members of the Planning Group expressed reservations about the value of industrial tours because the industries usually chosen for touring are the most advanced which the country has to offer. Because the subject of the Symposium is ergonomics in developing countries, focused particularly on industries which have not been highly developed, it was felt that a host country would be reluctant to exhibit these industries to the members attending the Symposium. However, this issue will definitely have to be decided in consultation with the host country when it is chosen.

It was agreed that a format would be followed of plenary sessions in the morning led by well known ergonomists speaking on one of the major themes chosen for the Symposium. The afternoons would be devoted to round table discussions, panels, or workshops led by the plenary speakers, with assistance from worker and employer representatives as appropriate.

Dr. El Batawi noted that the WHO could provide two experts as plenary speakers, one in the area of rural development dealing with agriculture in particular, and one dealing with ergonomics as applied to small industries.

It was agreed that the IEA would designate a two or a three member team to represent the IEA in planning the Symposium and also to present papers relating to the themes of the Symposium.

The question of working languages was discussed, but no agreement could be reached pending the selection of a host country. However, it was agreed that the possibility existed for arranging the afternoon sessions of the Symposium according to languages in order to reduce the need for interpretation during the afternoon sessions, or at least beyond the usual working time of the interpreters.

The number of participants was estimated at 100 up to 300, depending on the host country and the amount of support which the ILO would be able to give to workers' and employers' representatives to attend. It was suggested that consideration be given to a two-tier registration fee system in order to encourage those from developing countries with limited budgets to attend, whereas participants from developed countries would pay a substantially higher registration fee. However, it was suggested that the registration fee for the highest level be maintained at no more than \$100. if possible.

An extended discussion took place regarding the way in which the proceedings of the Symposium could be handled. It was noted that some participants, particularly government officials, often need or desire to have their remarks concerning their particular country situation appear in the proceedings, although it is doubtful that these remarks have particular relevance when the major objectives of the symposium are considered.

Because of the expense involved in producing large volumes of symposium proceedings, it was agreed that the plenary speakers would provide papers which could appear in their entirety in the proceedings, while an attempt would be made to summarise the contributions of those participating in round table discussions or workshops so that the volume of the proceedings would not become excessive, while at the same time satisfying the need for some government representatives to demonstrate that they had presented remarks to the symposium.

The IEA representatives noted that their funds were quite limited for direct support of the Symposium, although funds are advanced to the organisers of the IEA Congress with the understanding that, if any excess funds occur after all expenses have been met, the host society and the country would retain 50 per cent. of the funds whereas the IEA would retain the other 50 per cent. of the funds. Since the IEA is not expected to make any advance of funds for organising the Symposium, it was understood that all of the financial arrangements would be in the hands of the host country, with the exception of the funds the ILO will provide for workers' and employers' representatives to attend.

ETHEIDGENÖSSISCHE TECHNISCHE HOCHSCHULE
ZÜRICHInstitut für Hygiene und Arbeitsphysiologie
Dir. Prof. Dr. med. E. GrandjeanClausiusstrasse 21
Telefon 01 3262 11Postadresse:
Institut für Hygiene und Arbeitsphysiologie
ETH-Zentrum
CH-8092 Zürich

May 26th, 1982

Mr. Harry L. Davis
Secretary General, IEA
Eastman Kodak Co.
Kodak Park, Bldg. 56Rochester, New York 14650, U.S.A.
-----Proposals for amendments of the rules of the IEA

The "Gesellschaft für Arbeitswissenschaft" (the German federated member of the IEA) apprehends that in future the IEA may need a Vice President who could represent or substitute the President when he is unable to attend the council meetings. Another difficulty might arise in future when council meetings are held far-away for most of the council members: In such cases the risk is great that the required simple majority of the total council membership will not be achieved. In order to prevent these two difficulties, some modifications of the rules are proposed. Finally, in the present rules it is not clear who has the right to change rules. This should be clarified.

Proposals of the G.f.A.

All proposed new wordings in the following texts are underlined.

- 1.) In the paragraph Governing Body the following modifications are proposed:
 Where voting is necessary a simple majority of the Council members will apply, provided that one third of the total membership is present.
- 2.) After the paragraph "Governing body" a new paragraph should be included with the following wording:
Changes of rules
Changes of rules are in the competence of the council.
- 3.) The paragraph on Officers should be changed as follows:
 The Council will elect Officers of the Association for the following period. These will be the President, Vice President, Secretary, Treasurer and the Chairman of the Congress Committee.

4.) The paragraph "Executive Committee" should be completed as follows:

An Executive Committee will be formed of the President, Vice President, Secretary, Treasurer and the Chairman of the Congress Committee.

CC: Prof. H. Scholz

Prof. W. Rohmert

INTERNATIONAL ERGONOMICS ASSOCIATION

APPENDIX I

Income and Expenditure Jan. 1981 - Dez. 1981

<u>I N C O M E</u>	DM	DM	DM
<u>Membership fees</u>	1980	1981	
Japan Ergonomics Research Society	290,--	554,--	
Nederlandse Vereniging voor Ergonomie	1.059,--	1.075,--	
Societa Italiana di Ergonomia	223,--	221,--	
Gesellschaft für Arbeitswissenschaft		1.115,--	
Ergonomics Society		1.511,--	
Human Factors Society USA		2.545,--	
Société d'Ergonomie de Langue Française		708,--	
Hungarian Society for Organisation and Management Science		311,--	
Nordic Ergonomic Society		1.342,--	
Ergonomic Society of Australia and New Zealand		774,--	
	<u>1.572,--</u>	<u>10.156,--</u>	11.728,--
IEA/ES-Conference			3.166,--
Balance Commerzbank Jan. 1981			<u>7.494,--</u>
			22.388,--
			=====

Income and Expenditure Jan. 1981 - Dec. 1981

<u>E X P E N D I T U R E</u>	DM	DM	DM
Bank costs	36,--		
Telegram	16,--		
Executive Committee-Meeting Geneva	3.184,--		
Japan Ergonomics Research Society (US \$ 2.500 ,- Advance for IEA '82)	6.135,--		
Mailing costs Dr. Pearson	385,--		
Travelling costs Rochester	2.157,--		
Prof. Konz (Stamps etc. for IEA-Newsletter)	<u>129,--</u>	12.042,--	
Balance Commerzbank Dec. 1981		<u>10.346,--</u>	22.388,-- =====

MEMBERSHIP - FEES

	1979		1980		1981		1982 +)
	DM	Arrears	DM	Arrears	DM	Arrears	DM
Ergonomics Society	840,--		1.379,--		1.511,--		1.600,--
Ergonomics Society of Australia and New Zealand	352,--		639,--		774,--		774,--
Gesellschaft für Arbeitswissenschaft	573,--		966,--		1.115,--		1.300,--
Human Factors Society USA	1.663,--		2.265,--		2.545,--		2.600,--
Human Factors Association of Canada	224,--		389,--			400,--	410,--
Japan Ergonomics Research Society	299,--		290,--		554,--		560,--
Nederlandse Vereniging voor Ergonomie	485,--		1.059,--		1.075,--		1.100,--
Nordic Ergonomic Society	626,--		1.337,--		1.342,--		1.350,--
Polish Ergonomics Society	323,--		562,--			570,--	570,--
Société d'Ergonomie de Langue Française	378,--		655,--		708,--		710,--
Società Italiana di Ergonomia	195,--		223,--		221,--		230,--
Hungarian Society for Organisation and Management Science	191,--		299,--		311,--		320,--
Asociación Mexicana de Ergonomia	--		--				
Yugoslav Ergonomics Society		300,--		400,--		400,--	400,--
Israel Ergonomics Society	--		--			330,--	330,--
Sociedad Española de Psicología		100,--		--		--	--
	6.149,--	400,--	10.063,--	400,--	10.156,--	1.400,--	12.254,--

12-03-1982

+) estimated

INTERNATIONAL ERGONOMICS ASSOCIATION



- President:** Prof. J. Rosner, ul. Narbutta 15 m.l., 02-536 Warszawa, Poland
Tel.: Office +49-63-76
- Secretary General:** H. L. Davis, Eastman Kodak Co., Kodak Park, Bldg. 56, Rochester, New York 14650, USA
Tel.: Office +1-716-7220206 Home +1-716-244-1199
- Treasurer:** Prof. Dr. H. Scholz, Ardeystr 67, D-4600 Dortmund 1, W. Germany
Tel.: Office +49-231-124243 Home +49-231-128497
- Bankers:** Commerzbank Dortmund Account No. 210 6508

INTERNATIONAL ERGONOMICS ASSOCIATION

MINUTES OF THE EXECUTIVE COMMITTEE MEETING, IEA HELD AT ILO OFFICES, GENEVA, SWITZERLAND 15-16 MARCH, 1982

Present: Mr. H. L. Davis
Prof., Dr. H. Scholz

Guests: Prof. A. Wisner

Because of the delays in the mail between the USA and Poland, Prof. Jan Rosner did not receive notification of the change of meeting days from 25 and 26 February 1982 to 15 and 16 March 1982. Consequently, Prof. Rosner arrived in Geneva two weeks early and could not remain for the Committee meeting on 15 and 16 March.

The first day of the meeting was held in conjunction with Mr. Georges Spyropoulos, Chief, TRAVAIL Department of the ILO; Dr. J. L. Purswell, Chief of SEC/HYG and others of ILO and Dr. M.A. El Batawi, Chief Medical Officer at the WHO. Following are the minutes of that meeting:

Minutes of the Executive Committee of
the International Ergonomics Association
held in Geneva (15-16 March 1982)
concerning the International Symposium
on Ergonomics in Developing Countries

1. The meeting was convened by Mr. Georges Spyropoulos, Chief, TRAVAIL Department of the ILO. Those in attendance were Mr. Harry Davis, Secretary General of the International Ergonomics Association, Rochester, N.Y. (USA), Prof. A. Wisner of the Conservatoire national des Arts et Métiers, Paris (France), Prof. H. Scholz, Treasurer of the International Ergonomics Association, Dortmund (Federal Republic of Germany), Dr. M.A. El Batawi, Chief Medical Officer at the WHO, Mr. D. Brown of SEC/HYG, Mrs. Y. Regali of SEC/HYG, and Dr. J.L. Purswell, Chief of SEC/HYG. Mr. Spyropoulos opened the meeting by welcoming the group to Geneva and noting that Prof. Rosner of Poland had visited Geneva during the first week in March because he was unable to attend the present meeting. Discussions were held between Prof. Rosner and Mr. Spyropoulos and Dr. Purswell regarding the possible host countries for the meeting. Mr. Spyropoulos then explained the present situation regarding a host country for the Symposium.
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- (d) Dr. El Batawi noted that Egypt was a potential host country for the Symposium. He indicated that he would be willing to consult with the current Labour and Health Ministers regarding their willingness and interest to

host the Symposium. It was noted that some political problems could exist which would limit the opportunity of representatives from some developing countries to attend the Symposium.

- (e) Prof. Wisner suggested that Tunisia also be considered as a host country for the meeting because of a corps of trained ergonomists in that country.

It was agreed by the group that consideration should be given in selecting a host country to the proximity of the host country to the principal developing nations who are intended to benefit from the Symposium. Mr. Spyropoulos noted that the ILO would spend the major portion of its support for the Symposium in providing for travel and per diem of worker and employer representatives of the developing countries to attend the Symposium. This action would help to assure that the developing countries were fully represented at the Symposium, regardless of the host country ultimately chosen.

Everyone agreed that the choice of the host country was a critical factor in determining the overall scheduling of the meeting. Taking into account the time needed for planning and publicising the meeting, as well as the additional time required to confirm arrangements with a host country, it was agreed that the most likely date for scheduling the Symposium would be late 1983 or early 1984. The planning meeting was then adjourned in Mr. Spyropoulos' office and convened in Dr. Purswell's office.

The title of the Symposium was discussed and it was agreed that it would remain as indicated in the original materials, i.e. "Symposium on Ergonomics in Developing Countries". The group then discussed the principal outcomes expected from the Symposium and agreed that it should accomplish two purposes:

- (a) provide for an exchange of information on ergonomic problems in developing countries.
- (b) identification of the means to apply ergonomics to the problems of developing countries.

Dr. El Batawi noted that the WHO has developed a number of useful publications that would be of assistance in this regard. It was noted that the ILO has a variety of means of action, such as the adoption of conventions and recommendations by the International Labour Conference or the development of codes of practice which require that they be reviewed by a tripartite meeting of experts and in turn approved by the Governing Body. Another means of action is the hosting of symposia to exchange information on a topic, such as the Symposium on Ergonomics in Developing Countries. While various means of promoting^{the} application of ergonomics to the problems of developing countries are expected to be identified as a result of the proposed Symposium, it is not the intent of the Symposium to adopt specific conclusions and recommendations, since this would ordinarily be the function of a tripartite meeting of experts within the ILO.

The four major themes were reviewed and it was agreed that the themes would be stated as follows:

- Theme 1. Role of ergonomics in development.
- Theme 2. Action at the level of the industrial undertaking.
- Theme 3. Ergonomics in the rural sector.
- Theme 4. Education and training in ergonomics.

After some discussion of the advantages of meetings of various durations, it was agreed that the most desirable length for the symposium would be 3 1/2 to 4 days, taking into account the cost involved for the host country and the need to cover a broad range of material. Some of the members of the Planning Group expressed reservations about the value of industrial tours because the industries usually chosen for touring are the most advanced which the country has to offer. Because the subject of the Symposium is ergonomics in developing countries, focused particularly on industries which have not been highly developed, it was felt that a host country would be reluctant to exhibit these industries to the members attending the Symposium. However, this issue will definitely have to be decided in consultation with the host country when it is chosen.

It was agreed that a format would be followed of plenary sessions in the morning led by well known ergonomists speaking on one of the major themes chosen for the Symposium. The afternoons would be devoted to round table discussions, panels, or workshops led by the plenary speakers, with assistance from worker and employer representatives as appropriate.

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The number of participants was estimated at 100 up to 300, depending on the host country and the amount of support which the ILO would be able to give to workers' and employers' representatives to attend. It was suggested that consideration be given to a two-tier registration fee system in order to encourage those from developing countries with limited budgets to attend, whereas participants from developed countries would pay a substantially higher registration fee. However, it was suggested that the registration fee for the highest level be maintained at no more than \$100, if possible.

An extended discussion took place regarding the way in which the proceedings of the Symposium could be handled. It was noted that some participants, particularly government officials, often need or desire to have their remarks concerning their particular country situation appear in the proceedings, although it is doubtful that these remarks have particular relevance when the major objectives of the symposium are considered.

Because of the expense involved in producing large volumes of symposium proceedings, it was agreed that the plenary speakers would provide papers which could appear in their entirety in the proceedings, while an attempt would be made to summarise the contributions of those participating in round table discussions or workshops so that the volume of the proceedings would not become excessive, while at the same time satisfying the need for some government representatives to demonstrate that they had presented remarks to the symposium.

The IEA representatives noted that their funds were quite limited for direct support of the Symposium, although funds are advanced to the organisers of the IEA Congress with the understanding that, if any excess funds occur after all expenses have been met, the host society and the country would retain 50 per cent. of the funds whereas the IEA would retain the other 50 per cent. of the funds. Since the IEA is not expected to make any advance of funds for organising the Symposium, it was understood that all of the financial arrangements would be in the hands of the host country, with the exception of the funds the ILO will provide for workers' and employers' representatives to attend.

The second half of the Executive Committee meeting was held on 16 March 1982 with Prof. Scholz and Mr. Davis in attendance. Actions were taken on the following items.

EC/82/1 - A request of the Italian Ergonomics Society for the IEA to support a joint Italian Ergonomics Society/IFIP Conference on "Systems Design For With and By the Users" September 1982 was approved. IEA 'will' lend its name and good offices to the support of this conference. No financial support is expected or granted. (Appendix II)

EC/82/2 - Tentative inquiries were received from ICSID in response to John Wood's suggestions for a joint ICSID/IEA Congress. These were given support, and John Wood was encouraged to develop them further in order to be reviewed at Tokyo IEA Council Meeting.

EC/82/3 - Asociacion Mexicana de Ergonomia, A.C.

Great difficulties have been experienced in the past year by the Secretary-General in his attempts to communicate with the Mexican Ergonomics Society. Only recently has an avenue of communication opened up via Dr. Luis Aberto Vargas. Further attempts will be made to establish a two-way communication.

EC/82/4 - A report was received and accepted from Mr. Tom Leamon regarding the IEA/ISO activities. Mr. Leamon is maintaining current and active relations with ISO.

EC/82/5 - IEA Financial Report

Prof. Scholz submitted an Income and Expenditure Report for January - December 1981. The report is attached. (Appendix I)

ACTION
IEA COUNCIL

The Sociedad Espanola de Psicologia has requested a termination of their membership within the IEA. Correspondence is enclosed. (Appendix III)

ACTION
IEA COUNCIL

The Yugoslav Society has not responded to the inquires of Prof. Scholz, nor have they paid their dues for the past three years.

A decision will be taken in Tokyo regarding the termination of membership of the Yugoslav Society.

Prof. Scholz will present a three year summary of finances at the IEA Council meeting in Tokyo.

EC/82/6 - Other Matters

Numerous requests from other organizations were received, reviewed and acted upon.

Meeting adjourned.


Harry L. Davis
Secretary General, IEA

6/30/82

A P P E N D I X

Appendix I	IEA Financial Report
Appendix II	IFIP/Italian Ergonomics Society
Appendix III	Correspondence with Spanish Society
Appendix IV	IEA Council/Tokyo - Abbreviated Agenda
Appendix V	Rules
Appendix VI	Proposal For Rules Change

URGENT:

Please inform the Secretary-General of your Society's designate to the IEA Council Meeting in Tokyo.

INTERNATIONAL ERGONOMICS ASSOCIATION

Income and Expenditure Jan. 1981 - Dez. 1981

<u>I N C O M E</u>	DM	DM	DM
<u>Membership fees</u>	1980	1981	
Japan Ergonomics Research Society	290,--	554,--	
Nederlandse Vereniging voor Ergonomie	1.059,--	1.075,--	
Societa Italiana di Ergonomia	223,--	221,--	
Gesellschaft für Arbeitswissenschaft		1.115,--	
Ergonomics Society		1.511,--	
Human Factors Society USA		2.545,--	
Société d'Ergonomie de Langue Française		708,--	
Hungarian Society for Organisation and Management Science		311,--	
Nordic Ergonomic Society		1.342,--	
Ergonomic Society of Australia and New Zealand		774,--	
	<hr/>	<hr/>	
	1.572,--	10.156,--	11.728,--
IEA/ES-Conference			3.166,--
Balance Commerzbank Jan. 1981			<hr/> 7.494,--
			22.388,--
			=====

Income and Expenditure Jan. 1981 - Dec. 1981

- 2 -

<u>EXPENDITURE</u>	DM	DM	DM
Bank costs	36,--		
Telegram	16,--		
Executive Committee-Meeting Geneva	3.184,--		
Japan Ergonomics Research Society (US \$ 2.500 ,- Advance for IEA '82)	6.135,--		
Mailing costs Dr. Pearson	385,--		
Travelling costs Rochester	2.157,--		
Prof. Konz (Stamps etc. for IEA-Newsletter)	<u>129,--</u>	12.042,--	
Balance Commerzbank Dec. 1981		<u>10.346,--</u>	<u>22.388,--</u> =====

MEMBERSHIP - FEES

	1979		1980		1981		1982 +)
	DM	Arrears	DM	Arrears	DM	Arrears	DM
Ergonomics Society	840,--		1.379,--		1.511,--		1.600,--
Ergonomics Society of Australia and New Zealand	352,--		639,--		774,--		774,--
Gesellschaft für Arbeitswissenschaft	573,--		966,--		1.115,--		1.300,--
Human Factors Society USA	1.663,--		2.265,--		2.545,--		2.600,--
Human Factors Association of Canada	224,--		389,--			400,--	410,--
Japan Ergonomics Research Society	299,--		290,--		554,--		560,--
Nederlandse Vereniging voor Ergonomie	485,--		1.059,--		1.075,--		1.100,--
Nordic Ergonomic Society	626,--		1.337,--		1.342,--		1.350,--
Polish Ergonomics Society	323,--		562,--			570,--	570,--
Société d'Ergonomie de Langue Française	378,--		655,--		708,--		710,--
Società Italiana di Ergonomia	195,--		223,--		221,--		230,--
Hungarian Society for Organisation and Management Science	191,--		299,--		311,--		320,--
Asociación Mexicana de Ergonomia	--		--				
Yugoslav Ergonomics Society		300,--		400,--		400,--	400,--
Israel Ergonomics Society	--		--			330,--	330,--
Sociedad Española de Psicología		100,--		--		--	--
	6.149,--	400,--	10.063,--	400,--	10.156,--	1.400,--	12.254,--

12-03-1982

+) estimated



INTERNATIONAL FEDERATION FOR INFORMATION PROCESSING

W.G. 9.1. announces a
work conference on

SYSTEMS DESIGN
FOR
WITH and
BY
THE USERS

september 1982

Riva del Sole (Italy)

The design, implementation and use of computer system is a process of human choice. User participation is frequently promoted as a solution for the misfit between the demands of technology and of those who have to work with that technology.

User participation can be seen in that respect not only a functional strategy to implement systems but also as a moral right of the users themselves.

User participation in computer system design had proved to be a difficult process. It requires:

- *awareness of the participants (call it computer assertivity)*
- *knowledge and abilities on side of the user to enable them to play the right part*
- *degrees of freedom in the existing managerial system.*

User participation calls for new instruments, methods and strategies.

A growing number of institutes are working on:

- *the education and training of users*
 - o *text books*
 - o *courses*
 - o *audio-visuals*
 - o *multi-media programmes, etc.*

- The development of new action models

- o prototypes
- o simulation
- o institutionalization and regulation of user participation
(technology agreements, involvement of worker councils, etc.).

The aim of the conference.

The conference is set up in order to exchange

- materials
- experiences with action programmes in practice
- research about effects of these methods and strategies.

The basic perspective is not that of management, the organization or the technologist but of the users themselves in the broadest sense.

Main issues of the conference are:

- labour relations: how real is participation, what are the objectives, conditions and strategies.
- technology: technical philosophy and user participation
- didactical methods and strategies
- conclusions: how to get the message through.

Working conference.

The conference is working conference. Verbal and audio-visual presentations will serve as input for working groups of 8-12 participants.

This calls for an active involvement of the participants. The input material and the output of the working groups will be brought together in a work-book.

Participants.

The conference is aimed at ^{workers,} researchers, consultants, employee-representatives, staff-specialists and managers involved in a bottom up approach to user participation. The number of participants has to be limited (70-80 people), due to the set-up of the conference.

Working Conference IFIP on System Design by the Users for the Users with
the Users :

Chairman

Claudio Ciborra

Politecnico di Milano-Università della
Calabria

Programme Committee

Fred Margulies

IFAC IFIP IIASA Vienna

Peter Mombrey

GMD Bonn

Jonstein Fjalestad

Norwegian Computing Center OSLO

Jean Louis Rigal

Université Paris Dauphine

Organizing Committee

Sven Jonasson

PTO Stockholm

Piercarlo Maggiolini

Università della Calabria- Politecnico di Milano

Invited Speakers

Prof. Kristen Nygaard

Norwegian Computing Center

Dr. Lars Matthiassen

DAIMI- Aarhus Universitetet

Prof. David Noble

MIT

Dr. Leslie Schneider

Harvard Business School

Dr. John Evans

Trade Unions Research Center- Brussels

Dr. Matteo Rollier

IRES- CIGL -Roma

We confirm your letter of January 21st.

Please excuse the delay of our answer: It was caused by the the necessity of discussing the high membership fees of the IEA.

We regret very much to inform you - after many consultations - that we must withdraw our IEA-membership, as our budget does not allow to pay the membership duties.

We shall beg our bank for a cheque of 100,- Swfrs. for 1979.

Please remit out debts beginning from 1980.

M.G. Barrientos

Treasurer

Minutes of the Executive Committee of
the International Ergonomics Association
held in Geneva (15-16 March 1982)
concerning the International Symposium
on Ergonomics in Developing Countries

1. The meeting was convened by Mr. Georges Spyropoulos, Chief, TRAVAIL Department of the ILO. Those in attendance were Mr. Harry Davis, Secretary General of the International Ergonomics Association, Rochester, N.Y. (USA), Prof. A. Wisner of the Conservatoire national des Arts et Métiers, Paris (France), Prof. H. Scholz, Treasurer of the International Ergonomics Association, Dortmund (Federal Republic of Germany), Dr. M.A. El Batawi, Chief Medical Officer at the WHO, Mr. D. Brown of SEC/HYG, Mrs. Y. Regali of SEC/HYG, and Dr. J.L. Purswell, Chief of SEC/HYG. Mr. Spyropoulos opened the meeting by welcoming the group to Geneva and noting that Prof. Rosner of Poland had visited Geneva during the first week in March because he was unable to attend the present meeting. Discussions were held between Prof. Rosner and Mr. Spyropoulos and Dr. Purswell regarding the possible host countries for the meeting. Mr. Spyropoulos then explained the present situation regarding a host country for the Symposium.

(a) Mexico, the country initially contacted as a potential host for the meeting has not yet been able to provide a definite reply to the invitation of the ILO to host the meeting. The problem for the Mexican Government in reaching a decision is related to the elections taking place during 1982 in the country and the inability of either the current Government or the new Government to officially reach a decision before the end of 1982.

However, Mr. Spyropoulos reported that there was some indication that the current Labor Minister would be continuing in the new Government and he would attempt during his mission to Mexico beginning the last week of March to learn more about the willingness of the Mexican Government to host the Symposium, given that the current Labor Minister will continue in the new Government.

- (b) India was mentioned as a possible host country. The Indians had been invited by the ILO to consider hosting the meeting because of the inability of the Mexican Government to reach a decision regarding hosting the meeting. While no definite commitment had been received from the Indian Government at the time of the planning meeting, it was anticipated that a favourable response might be received in the next few months.
- (c) The Government of Brazil was mentioned as a possible host for the meeting. The Brazilians have a number of very capable ergonomists who work in conjunction with their national centre, FUNDACENTRO, and hosting the Symposium would provide the Brazilians with an opportunity to publicise their expertise in the field as well as the establishment by the ILO of a Latin American Center for Occupational Safety and Health in Brazil.
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host the Symposium. It was noted that some political problems could exist which would limit the opportunity of representatives from some developing countries to attend the Symposium.

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It was agreed by the group that consideration should be given in selecting a host country to the proximity of the host country to the principal developing nations who are intended to benefit from the Symposium. Mr. Spyropoulos noted that the ILO would spend the major portion of its support for the Symposium in providing for travel and per diem of worker and employer representatives of the developing countries to attend the Symposium. This action would help to assure that the developing countries were fully represented at the Symposium, regardless of the host country ultimately chosen.

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RULES OF THE INTERNATIONAL ERGONOMICS ASSOCIATION

Name and Registered Headquarters

Under the name "International Ergonomics Association," an international organization having its registered headquarters at Zurich is formed pursuant to Article 60 et seq of the Swiss Civil Code.

Objects

The International Ergonomics Association is intended to bring together organizations and persons concerned with ergonomics or human factors--i.e., relations between man and his occupation, equipment, and environment in the widest sense, including work, play, leisure, home, and travel situations. To further these aims, it will establish international contacts amongst those acting in this field, promote knowledge and practice of ergonomics on an international basis--especially in areas where no Federated Society exists, cooperate with international associations in order to encourage the practical application of ergonomics in industry and other areas, and promote scientific research by qualified persons in this field.

Membership

The association will have a membership comprising:

1. Federated Ergonomics Societies.
2. Affiliated Societies.
3. Associated Societies.
4. Sustaining Members.

Definition of Members

1. Federated Ergonomics Societies will be societies that have the main aim of promoting ergonomics. They will be bodies that elect a governing council from within their own membership and encourage the free publication of research material. In general, there will be only one Federated Society in any geographical area.
2. Affiliated Societies will be other societies that have an interest in ergonomics but that have their main aim in an associated area or are ineligible for Federated Member status because there is already a Federated Society for their area.

Rules of the IEA--3
3576P, June 21, 1982

3. Associated Societies will be groups and organizations that have an interest in ergonomics and that are international in nature. The conditions of their acceptance will be determined in each individual case.
4. Sustaining Members will be organizations that have an interest in the association and support it by the payment of an annual subscription.

Governing Body

The governing body of the association will be the council. This will be made up of the officers of the association and the representatives of Federated Societies. Each society with more than 50 but less than 500 voting members will nominate one member of council, and those with 500 or more will nominate two. Those with 1000 or more will nominate three.

All major decisions concerning the association will be taken by council, which should meet annually. Where voting is necessary, a simple majority of the total council membership will apply. Postal and proxy votes will be held if necessary on major decisions where representative members are unable to attend meetings.

Rules of the IEA--4
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Council members will be able to send alternative representatives to meetings from within their National Society if they are unable to attend. Council will normally be called together at the President's request or at the request of a simple majority of the members. Council will elect all new members of the association in any category.

Officers

The council will elect officers of the association for the following period. These will be the President, Secretary, Treasurer, and the Chairman of the Congress Committee. The latter will be elected in cooperation with the Federated Society, which will be responsible for the next congress.

Terms of Office

Periods of office will normally commence with the Triennial International Congress. The President will serve for one term of 3 years (in addition to any period as an ordinary member of the council). The Secretary and Treasurer may serve for a maximum of two consecutive terms--a total of 6 years (in addition to any period as an ordinary member of the council). Each representative member of council will serve initially for one term of 3 years but will be eligible for re-election for one more term.

Rules of the IEA--5
3576P, June 21, 1982

Executive Committee

An Executive Committee will be formed consisting of the President, Secretary, Treasurer, and Chairman of the Congress Committee. Others may be invited to attend.

All representative members of council will be notified of Executive Committee meetings and will be able to attend if they wish. The Executive Committee will have the responsibility of making routine decisions and of carrying out other duties as delegated to them by the council. The Executive Committee will meet at periods dictated by the needs of the association.

Finance

Each Federated Society will pay a fee consisting of a fixed amount per society, together with a variable amount based on the total number of voting members in the society at a rate to be determined by council for each 3-year period. This money is to be used for the payment of the general administrative costs of running the association, setting up meetings, sponsoring publicity, payment of expenses of officers, and in aiding cooperation with other international organizations. Traveling expenses of the representatives of Federated Societies on council will normally be the responsibility of that society or the individual council

member

Rules of the IEA--6
3576P, June 21, 1982

Auditors

The selection of the auditors will be the responsibility of the council.

General Assembly

At each triennial International Congress, a general assembly will be held that will be a meeting open to all members who wish to attend for the purpose of receiving the approved report of the association. It will provide an opportunity for the Council of the International Ergonomics Association to hear the views of the many individual members of the Federated, Affiliated, and Associated Societies and that of the council. It will not be a decision-making body.

Business Office

c/o Human Factors Society

P. O. Box 1369

Santa Monica, California 90406

U.S.A.

(213)394-1811

HLD:CBR

- President:** Prof. J. Rosner, ul. Narbutta 15 m.l., 02-536 Warszawa, Poland
Tel.: Office +49-63-76
- Secretary General:** H. L. Davis, Eastman Kodak Co., Kodak Park, Bldg. 56, Rochester, New York 14650, USA
Tel.: Office +1-716-7220206 Home +1-716-244-1199
- Treasurer:** Prof. Dr. H. Scholz, Ardeystr 67, D-4600 Dortmund 1, W. Germany
Tel.: Office +49-231-124243 Home +49-231-128497
- Bankers:** Commerzbank Dortmund Account No. 210 6508



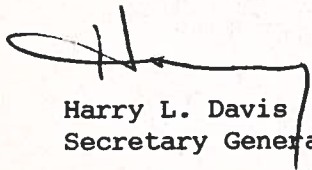
INTERNATIONAL ERGONOMICS ASSOCIATION

COUNCIL MEETING

TOKYO, JAPAN

ABBREVIATED AGENDA

1. Review and approval of Executive Committee Minutes, March 1982
2. Review and approval of Council Minutes, October 1981
3. Consideration of rules changes
4. Review and acceptance of 1985 9th IEA Congress budget and venue
5. Review and acceptance of proposal for IEA/ILO/WHO Congress on Ergonomics in Developing Countries
6. Review and acceptance of joint IEA/HFS/HFAC Conference on Industrial Ergonomics - Toronto, Canada
7. Review of 10th IEA Congress, Australia
8. Election of President, Secretary-General and Treasurer
9. Consider action relative to societies who are in arrears with their dues
10. Other matters


Harry L. Davis
Secretary General, IEA

6/30/82

JERS

TOHYO

JAPAN ERGONOMICS RESEARCH SOCIETY

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MASAMITSU OSHIMA
VICE-PRESIDENT
KUNIE HASHIMOTO

c/o FOUNDATION FOR THE MEDICAL RESEARCH
ON THE TRAFFIC ACCIDENT AND DISASTER.
5th FL. IKEBUKURO BRANCH OF KYOWABANK
1-9-3, HIGASHI IKEBUKURO, TOSHIMA KU,
TOKYO, JAPAN

January 10, 1981


Prof. J. Rosner
ul. Narbutta 15 m.l.,
02-536 Warszawa, Poland

Dear Prof. Rosner:

At the recent council meeting of JERS, the matter concerning the Award Committee of IEA and possible candidates for IEA Award were presented. The Japan Ergonomics Research Society will not nominate anyone from Japan as candidate.

I, as a member of this committee after hearing the comment from JERS, decided not to nominate any Japanese ergonomists for 1982 selection. Here, I nominate Prof. Alphonse Chapanis for the official consideration of our committee, because of the fact that he has done distinguished work and service for the IEA as an international organization and of his distinguished academic work in the wide fields of human sciences.

With my best regards,


Sadao Sugiyama
Council member, IEA
Member, Award Committee, IEA
Professor of Psychology
Kwansei Gakuin University
Nishinomiya, Hyogo, Japan

cc. M. Davis

For your reference.

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January 10, 1981

TO WHOM IT MAY CONCERN:

SUBJECT: Progress report of preparation of the 8th Congress

Concerning the preparation of the 8th Congress, the followings are the progress made after the official report presented at the Council Meeting in Oslo in the summer of 1980.

1. The organizing committee for the 8th Congress was organized. As the result, the preparatory committee was dissolved.
2. General Chairman of the 8th Congress will be Dr. Masamitsu Oshima, the President of the Japan Ergonomics Research Society.
Secretary-General of the 8th Congress Secretariat will be Dr. Toshiyuki Furukawa, Professor, the Institute of Medical Electronics, School of Medicine, Tokyo University.
IEA Council Representative will be Dr. Sadao Sugiyama, Professor of Psychology, Kwansei Gakuin University.
3. As the members of the IEA Advisory Committee for the 8th Congress, the following persons were already appointed by IEA and were accepted.

Mr. Harry L. Davis, Secretary-General, IEA
Prof. Dr. E. Grandjean
Dr. B. Shackel
The Late Dr. P. Ruffel Smith

4. As the members of the Advisory Board for the 8th Congress, more than ten Japanese business leaders are asked to serve as advisors.
5. The organizing Committee of the 8th Congress consists of 30 active members of the Japan Ergonomics Research Society which include Dr. M. Oshima, as the Chairman of the Organizing Committee, Dr. K. Hashimoto, as the Co-Chairman of the Committee, Dr. T. Furukawa, as the Secretary-General of the 8th Congress Secretariat, and Dr. S. Sugiyama, as the IEA Representative.

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6. The Chairman of the Fund Raising Committee for the 8th Congress will be Dr. Kentaro Takagi, Professor Emeritus, Nagoya Municipal University and presently a member of the House of Councilors.

7. Schedule of the 8th Congress:

	<u>Morning</u>	<u>Afternoon</u>	<u>Evening</u>
8/23 (Mon.)	Registration		Committees
8/24 (Tue.)	Opening Ceremonies Session	Session	Welcome party
8/25 (Wed.)	Session	General Assembly Keynote Address	
8/26 (Thu.)	Session	Professional visit	Banquet
8/27 (Fri.)	Session	Session Closing Ceremonies	

8. Other chances related to the 8th Congress:

In order to provide chances to visit various cultural and technological spots other than in Tokyo, I have been investigating chances which industrial ergonomists and human factors specialists from other countries might get in such experiences while they are in Japan. Aviation people in Japan are planning to conduct some independent conference and industrial engineering groups are also interested in having conferences. As soon as I receive the final plan on the above matters, I'll inform you, so that the 8th Congress attendees can prepare for attending those conferences and can visit other parts of Japan at the same time.

9. Necessary actions:

Necessary actions related to the 8th Congress are now being undertaken by various members of the organizing committee.

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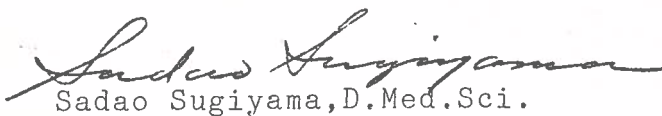
10. Official communication:

All official communication concerning the 8th Congress
should be addressed to:

Dr. Yoshiyuki Furukawa
Secretary-General, the 8th Congress of IEA
c/o The Institute of Medical Electronics
School of Medicine, Tokyo University
Hongo 7-3-1, Bunkyo-ku, Tokyo, Japan 113

Application for registration and other related business
letters should be addressed to:

Secretariat
Organizing Committee, IEA'82
c/o The Medical Information System
Development Center (MEDIS-DC)
Landick Akasaka Bldg.
2-3-4 Akasaka, Minato-ku
Tokyo, Japan 107



Sadao Sugiyama, D. Med. Sci.
Professor of Psychology
Kwansei Gakuin University
Nishinomiya, Hyogo, Japan 662

Council Member, IEA
Member of the Organizing Committee, IEA'82

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TOKYO, JAPAN

January 10, 1981

Mr. Harry L. Davis
B-69, 6th Fl., KP
Eastman Kodak Company
Rochester, New York 14650
U.S.A.

Dear Harry:

Season's greeting to you! I hope your physical condition is recovering well after the successful operation and you are now ready for an important IEA business. I am sure you are by this time. After I returned home from Los Angeles, I have found myself in minor trouble with physical function of which my first symptom appeared while I was in Oslo, and I will be in hospital, for a short duration of time during this month for the treatment.

Concerning the executive council meeting to be held in Geneva, it is not entirely a good time for us who belong to the Japanese universities. It is the most busy season of the nation-wide entrance examination. Of course, I already asked Dr. Oshima to visit Geneva but I found he will also be busy for the preparation of an important business in his organization. I sincerely apologize to all of you in the executive council meeting for our inability to attend this coming meeting.

Under those circumstances, I'll report to all of you on the progress of preparation of the 8th Congress as seen in the attached paper. According to your letter of December 24, 1980, three, including yourself, of possible attendants are advisors for the Congress and three are the officers. They will receive copies of this letter and of my report.

The followings are my comments to each item on the agenda:

1. Development of a congress on ergonomics in developing nations with members of WHO and ILO.

It is already decided at the 1980 council meeting the congress is to be held sometime in 1983. I think this is the year for publicizing about the congress to the

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general audience or to the related official agents of each government who are the members of WHO and ILO. I personally am recognizing the importance of such a congress, because I have been pointing out the similarities and differences of ergonomics' and psychological data among different nations. This point is especially important among the Asian nations. At our 8th Congress, the organizer of this congress may have a chance to publicize about it, if they wish to publicize as I did at IEA'79, Oslo conference, and Los Angeles meeting of Human Factors Society. Remember the 8th Congress will be practically the last chance to do so.

2. Review of plans by Dr. Sugiyama for the 8th IEA Congress particularly plans which concern (a) finances, (b) translation, (c) publication.

(see the attached paper)

3. Working with WHO to develop a training program in ergonomics for students in developing countries.

I personally think that this might be the role of the United Nations University who works closely with UNESCO. This university was founded in 1973 by the United Nations and UNESCO and the office is located in Tokyo.

I know many Japanese industrial complex have been accepting student trainees from various countries to their factories. I am sure many nations have been exchanging those highly motivated students who will work in their own countries after returning home. I think this topic must be carefully considered by IEA who will make a recommendation to each government through WHO or ILO. No matter who will make a recommendation, IEA must take an important role to organize the recommended curriculum for each level of students whose cultural background is different.

4. Report by Prof. Shackel on cooperation of IFIP

Unfortunately I did not have a chance to meet with a gentleman whose name was informed by Prof. Shackel during the time of MEDINFO'80 in Tokyo.

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TOKYO, JAPAN

J. O'Hare
R. Pearson

Topics discussed:


- (a) Publication of proceedings
- (b) Ladies program
- (c) Sight-seeing
- (d) Hotel accommodation
- (e) Special lecture
- (f) Selection of papers
- (g) Selection of Chairman/co-chairman
- (h) Others

Decision made and action proceeded:

- (a) We already asked JAL and Japan Travel Bureau to make survey on arrangement for small hotels at reasonable prices. However, if visitors come to Japan by group arrangement, the price of ordinary western style hotel room will be very reasonable.
- (b) There was a question of the congress period which is so late in August there might be no time allowance for sight-seeing before U.S. school starts. As you see in the attached paper, non-JERS member organization is now considering about organizing ergonomics-related conference before the 8th Congress.
- (c) The seat of chairman of the sessions will be opened for people from other countries than Japan. Japanese members will serve for the session as co-chairman, if necessary.

I hope the executive council meeting in Geneva will be successful and to meet you before long.

With my best regards,


Sadao Sugiyama
Council member, IEA
Executive council member, JERS
Professor of Psychology
Kwansei Gakuin University
Nishinomiya, Hyogo, Japan

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TOKYO. JAPAN

January 11, 1981

Mr. Harry L. Davis
B-69, 6th Fl. KP
Eastman Kodak Company
Rochester, New York 14650
U.S.A.

Dear Harry:

There are so many things to accomplish concerning IEA'82 before I go to my hospital. As the result, I had to postpone my arrangement with my hospital. However, I fortunately found that my hospitalization may be for less than a month.

The secretariat of IEA'82 has not yet received IEA loan from the office of IEA treasurer. I was told from Dr. Oshima that the secretariat will need the loan at this stage of preparation. Would you kindly advise him about the procedure to obtain the IEA loan and kindly make necessary arrangement for this matter?

Since we found both of us are unable to attend the executive council meeting, I asked Dr. Oshima to send an available person as a representative of JERS. He, after careful consideration, informed me that JERS will not send any official representative to the executive council meeting, because of the fact that the organizing committee of IEA '82 started its action which requires very careful arrangement.

JERS and the organizing committee of IEA'82 will send the following persons officially to the Annual Meeting of Human Factors Society in Rochester.

Dr. M. Oshima, as General Chairman of IEA'82
Dr. S. Sugiyama, as member of organizing committee
Dr. K. Noro, (the same)
Capt. H. Nagano, (the same)
Dr. K. Yajima, (the same)

Dr. Oshima and myself will attend the 1981 Council Meeting of IEA with the official capacity.

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TOKYO, JAPAN

As you kindly understand, the reason for sending those 5 persons to the HFS Annual Meeting is that we hope many American human factors specialists can visit Japan in 1982. Therefore, would you kindly make some arrangement for us?

With my best personal regards,



Sadao Sugiyama
Council Member, IEA
Executive Council Member, JERS



MINISTÈRE DES UNIVERSITÉS
CONSERVATOIRE NATIONAL DES ARTS ET MÉTIERS

Département des Sciences de l'Homme au Travail
PHYSIOLOGIE DU TRAVAIL — ERGONOMIE

Paris, le 8th January 1982

Monsieur le Professeur Oshima
Secretary general Japan Ergonomics
Research Society
Institute for Medical Electronics
Faculty of Medicine, University of
Tokyo,
HONGO TOKYO (Japon)

Dear Pr Oshima,

I am very happy to have been informed that Mrs de Keyser and myself, respectively president and secretary for international matters of the SELF are kindly invited as reporters at the IEA congress you are organizing in August.

I confirm that the title of my report is "language and computer systems - work analysis and cognitive load". It is both the title that I have proposed to IEA general secretary H.L. Davis and that he has confirmed after your acceptance and the title I have suggested on my reply card for the topic "Psycholinguistics and computers" (A₁ and/or A₀).

You shall find under the same cover 5 copies of the abstract, my curriculum vitae and a provisional travel schedule. I am sorry to send them only now, but SELF has received very late the answer to its request to have reporters to the IEA congress.

It would be very kind of you to let me know if you intend to give me time for a short communication, for a full report or for the introduction to a round table.

It is really a great pleasure to visit your country for the first time and to have a good opportunity to learn a lot about the Japanese ergonomic science and practice.

With my personal regards.

Truly yours.

A. Wisner

CURRICULUM VITAE OF A. WISNER

A. WISNER, M.D., Sc D., Psych.Dipl., works in the field of ergonomics since 30 years and as created the first unit of ergonomics in french industry. A.W. was from 1954 to 1962 head of the laboratory of physiology and biomechanics of the REGIE RENAULT for the comfort and safety of cars. From 1962 to 1966, A.W. was assistant director of the laboratory of work physiology at the CNRS (National Scientific Research Center) A.W. is since 1966 professor at the Conservatoire National des Arts et Métiers, director of the laboratory of work physiology and ergonomics of the C.N.A.M. (40 persons) and director of the french doctorate of Ergonomics (since 1976).

Secrétaire general of the SELF (french speaking ergonomics society) at its creation, A.W. was two time its president and is now its delegate for international affairs.

Former treasurer the IEA for six years, A.W. is now member of the council. He is also a former member of the council of the E.R.S. and fellow of the H.F.S.

Adviser of different agencies of C.E.E. and U.N., he is mainly involved with the PIACT (International program for better working conditions) of the ILO and is preparing the meeting of experts of ergonomics in developing nations (1983) on behalf of I.L.O., W.H.O. and I.E.A.

The program of the laboratory of ergonomics of the CNAM is oriented toward psychological and physiological aspects of mental load in modern technology in relation with human resources. For these reasons A.W. is president of the French Society of Psychology, member of the council of I.A.A.P. (International Association of applied psychology) and president of the french committee of work psychopathology.

The recent publications of A.W. are oriented towards aging, shift work, mental load and mental health, anthropotechnology.

PROVISORY PROGRAM OF A. WISNER TRAVEL TO ASIA.

(August - September 1982)

August 13	Departure from PARIS
" 14-17	SEOUL working conditions seminar
17-21	OSAKA Symposium on microelectronics
21-29	TOKYO I.E.A. Congress
August 29	
Sept. 4	KYOTO seminar on shift work
4-12	MANILA Teaching at U.P.
12-17	SINGAPORE ILO seminar
17-20	DENPASAR teaching at BALI University (?)
21	Return to PARIS.

LANGUAGE AND COMPUTER SYSTEMS

Work analysis and cognitive load

The expanding number of computers used in tertiary activities has raised working conditions problems. Usually, these questions have been approached from the view point of the qualities of the screen and environmental conditions. The different teams of the work physiology and ergonomics laboratory of the CNAM have mainly considered the cognitive activity, using the concepts of psycholinguistics and information processing in relation with some behavioral and physiological measurements such as those of eye movements and evoked potentials.

If some aspects of the work at computer terminals have been studied in laboratory, most of the researches have been performed in real situations : different journals printing shops, an international news agency, the french census analysis center, a new telecommunication terminal, the control room of an oil refinery ...

All these studies have shown a very wide range of cognitive loads explaining why some situations are rather easily accepted by the workers and why others need such an hyperexcitation of the brain that some neurotic phenomena can be observed and some effects on consecutive sleep demonstrated.

A very precise relation can be established between the density of the text read, measured by linguistic techniques and the frequency of eye fixations and between the complexity of the codification and the duration of eye fixations. With the same type of techniques it is possible to show why the redaction of news agency dispatches are different when V.D.T. are used from the former redaction with paper and pencil.

More "intelligent" V.D.T. may help to come back to a better redaction quality taking in account the different macrostructures of the original papers from which the dispatch is built.

Semantics is another important question to be considered not only for the professional users but also for the public who will use more and more complex computer systems. How far the semantic field prepared inside the memory of the computer is analogous to the semantic fields of the different users and how the very special retrieval mechanism of human memory can be simulated in the future computers ?

Lot of answers have be elaborated is this nev field of relations between linguistics and ergonomics.

WISNER Alain M.
Professor of work physiology and ergonomics
Conservatoire National des Arts et Métiers
41 rue Gay-Lussac 75005 PARIS FRANCE
Tél. 354.18.27

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Département des Sciences de l'Homme au Travail
PHYSIOLOGIE DU TRAVAIL - ERGONOMIE

Paris, le 8th January 1982

*Copie adressée au P^r Davis
H. Hurler
H. de Keyser*

Monsieur le Professeur Oshima
Secretary general Japan Ergonomics
Research Society
Institute for Medical Electronics
Faculty of Medicine, University of
Tokyo,
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Osaka Symposium on the Contribution of Microelectronics
to the Enhancement of Human Life

National Museum of Ethnology

August 19th and 20th, 1982

Robots, automated machinery, and data processors (including household electric apparatus, vending machines, and robots for medical treatment, aviation and industrial use) are the products of advanced microelectronics; their present influence upon human life is enormous. How can we best utilize these microelectronic machines in serving human beings and their societies? We would like to seek out new possibilities.

Host

Japan Society of Human-Robotics

President: Kiyoji Asai
(Professor, University of Osaka Prefecture)

Osaka Symposium-Steering Committee

Chairman : Toshihiro Tsumura
(Professor, University of Osaka Prefecture)

Advisory Board

Tadao Umesao (Director, National Museum of Ethnology)
Sakyo Komatsu (Author)
Hidetoshi Kato (Professor, Gakushuin University)
Sadao Sugiyama (Professor, Kwansai Gakuin University)
Kaoru Ando (Advisor, Fujitsu, Ltd.)
Ichiro Kato (Professor, Waseda University)
Saburo Tsuji (Professor, Osaka University)

(No special order is observed.)

Sponsors

Ministry of International Trade
and Industry

The Science Council of Japan

National Museum of Ethnology

Osaka Prefecture

Osaka City

Osaka Chamber of Commerce and Industry

The Ethnology Foundation of Japan,

Senri Office

The Yomiuri Shimbun, Osaka Head Office

Yomiuri Telecasting Corporation

(No special order is observed.)

With the Cooperation of:

The Foundation of Osaka Science
and Technology Center

Kansai Institute of Information
Systems

Kansai Productivity Center

The Japan Ergonomics Research Society
Society of Instrument and Control
Engineers

Japan Association of Automatic Control
Engineers

Information Processing Society of
Japan

Society of Bio-mechanism

Japan Industrial Robot Association

(No special order is observed.)

Osaka Symposium on the Contribution of Microelectronics to the Enhancement of Human Life

With the recent radical development and widespread use of micro-electronic parts, computers have become increasingly more compact, while increasing in capacity. This has also permitted systems of all types to be computerized and automated; as a result, we are now in the age of microelectronics.

Such technical advances greatly effect our society; their impact cannot be ignored. Ever since the latter half of the 1970's the advantages and disadvantages of microelectronics have been argued heatedly. On one hand, it is seen as a revolutionary new technology which will free the human race from the drudgeries of everyday life and bring new and increased prosperity, while on the other hand, such advances are seen as the cause of unemployment and low morale, therefore representing a step back in social progress. There is no consensus on these views at present.

Since the beginning of history, there has always been a reluctance to accept new technologies in their developmental stage, since they involve myriad unforeseeable problems. We can therefore perhaps view these arguments against microelectronics as a continuation of such tendencies. In Japan, computers have infiltrated our lifestyles to an astonishing degree, and are being put to a wide range of uses. The degree to which industrial robots and automated equipment have been developed and introduced make the Japanese manufacturing sector one of the most advanced in the world. The achievements of microelectronics are thus finding increased acceptance in Japanese society. Good examples of this can be seen in the automation of office procedures, communications networks, aircraft and other transportation systems, as well as in the systemization of data in medical engineering.

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This Symposium is planned for around August 1982, when ergonomists from all over the world will be present to attend the 8th Congress of the International Ergonomics Association (IEA '82) to actively exchange views on microelectronic developments and their implications for mankind so as to determine our choices for the future.

General Information

1. Time : August 19th (Thursday) and 20th (Friday), 1982 (2 days)
2. Place : National Museum of Ethnology
10-1, Expo Grounds, Senri, Suita City, Osaka 565, Japan
3. Fee : US\$100
(On-site registrants are requested to pay US\$100 in Japanese Yen.)

4. Application

Please fill out the enclosed application and send it to the Office of Osaka Symposium.

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<Dealing banks>

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Account Number: 101-430827
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"Osaka Symposium of Human-Robotics
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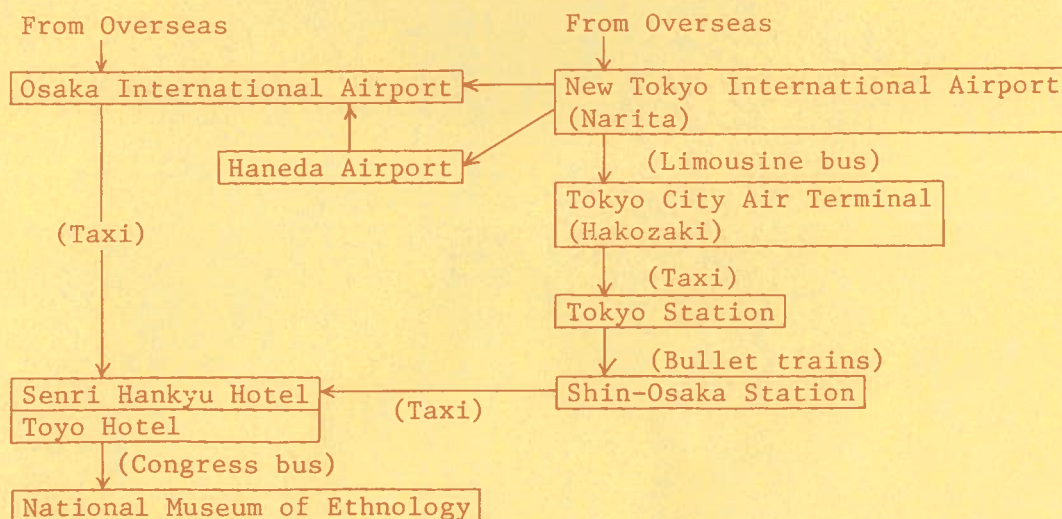
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France	Germany (Fed. Republic)	Greece
Guatemala	Honduras	Iceland
Iran	Ireland	Israel
Italy	Liechtenstein	Luxembourg
Malta	Mexico	Netherlands
New Zealand	Norway	Pakistan
Peru	Portugal	El Salvador
San Marino	Singapore	Spain
Surinam	Sweden	Switzerland
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Uruguay	Yugoslavia	

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There are several bank offices within walking distance of the Senri Hankyu Hotel and Toyo Hotel, but no offices near the symposium hall. Open hour of the city bank offices is from 9:00 a.m. to 3:00 p.m. on weekdays and from 9:00 a.m. to noon on Saturdays. They are closed on Sundays and National holidays. Exchange is also available at the cashier of the hotel (24 hours open.)

Weather and Climate

The average temperature and humidity of August in Osaka are 27°C and 70%, respectively. The symposium hall and hotels are of course air-conditioned.

Social Events

For all the participants and their family members of the symposium, the following social events are planned by the Organizing Committee. Those who wish to attend the following excursion are requested to complete the application form (Form B) and send it to the JTB Kyoto Office.

- 1) Excursion No. 1 on August 21, Saturday
Fee: ¥10,000/person

Full-day excursion to Kyoto city which is the first permanent capital of Japan. This course will include Nishijin Textile Center, Nijo Castle, Heian Shrine and Shoren-in Temple (Green tea and "Koto" music will be available inside of the garden.) Lunch will be served at beautiful Japanese Restaurant.

(This excursion is the same as described in IEA '82 Final Announcement.)

- 2) Excursion No. 2 on August 21, Saturday
Fee: ¥9,500/person

Full-day excursion to Nara city which is an ancient capital of old Japan. This course will include Deer Park, Todaiji Temple (biggest Buddha Image), Kasuga Shrine and Kofukuji Temple. Lunch will be served at Nara Hotel.

Official Agents for IEA'82 and Osaka Symposium

- (1) Carrier: The Organizing Committee has appointed Japan Air Lines (JAL) as the official carrier for IEA '82 and Osaka Symposium.

- (2) Travel Agent

Domestic: Japan Travel Bureau, Inc. (JTB)

Tokyo: 13-1, Nihonbashi 1-chome, Chuo-ku, Tokyo 103
Tel: 03-271-2346

Kyoto: Higashi Shiokoji-cho, Shimogyo-ku, Kyoto 600
Tel: 075-361-7241

Overseas: (From Europe) MEON TRAVEL AGENCY, 32, High Street,
Petersfield, Hampshire, England
Tel: 0730-4011

(From U.S.A.) GARBER TRAVEL, 1406 Beacon Street,
Brookline, Mass. 02146, U.S.A.
Tel: (617) 734-2100

- Ⓞ The carrier and the travel agents specified above are willing to provide you with information on group flight, etc. for IEA '82 (Aug. 23 ~ 27, Tokyo) and this Symposium.

Program (1)

August 19th (Thursday)

Registration (9:00 ~ 10:00 in front of the Lecture Hall; please take your registration card with you)

Opening Ceremony (10:00 ~ 10:20)

- Opening address:
- Kiyoji Asai
(President, Japan Society of Human-Robotics)
 - Tadao Umesao
(Director, National Museum of Ethnology)

Keynote Speech I (10:20 ~ 11:10)

"Robot Anthropology: Machinery as Partner"

by Sakyo Komatsu (Author)

When we review human history in terms of the relationship between tool/machine and human being, we notice that machinery has always been a capable assistant of human beings and has thus contributed to the realization of human dreams, though sometimes bringing hardship to their human "parents"; various current problems concerning robots will be reviewed, with the above fact in mind. Robots are in a way the children of human beings. They may sometimes be too strong to be controlled by their "parents". However, what do we hope our "children" to be, as "parents"?

Reports (11:15 ~ 12:35)

"How Has Society Received Robots?"

- Case 1: In Europe
by R. G. Sell (Official of British Labour Ministry)
- Case 2: In the U.S.A.
by D. Thompson (Professor of Stanford University)
- Case 3: In Japan
by Yukio Hasegawa (Professor, Waseda University)

Break (12:35 ~ 14:15)

Workshops (Introductory addresses: 14:20~15:20, Panel Discussion:
15:40~16:40)

① Workshop A "Robots and Human Beings"
The Future of Automated Machinery
Chaired by : Ichiro Kato
(Professor, Waseda University)

Introductory address A₁ : Saburo Tsuji
(Professor, Osaka University)

Reception (17:00~19:00 at Reception Hall)
Introductory address A₂ : Hiroyuki Yoshikawa
(Professor, the University of Tokyo)

Introductory address A₃ : D. Thompson
(Professor, Stanford University)

- Optimal System and Adaptive System
- FMS (Flexible Manufacturing System) and Metabolic System
- From Coexistence and Collaboration to Life Together

② Workshop B "The Computer and Daily Life"

Chaired by : Kaoru Ando
(Advisor, Fujitsu, Ltd.)

Introductory address B₁ : Hiroaki Terada
(Professor, Osaka University)

Introductory address B₂ : Ryoichi Mori
(Professor, Tsukuba University)

Introductory address B₃ : R. Hirsch (IBM)

Computers are currently being developed to be more compact and more decentralized in function. They are incorporated into personal data processors, automated machinery and household electric appliances and have come to be very common in our daily life. Under such circumstances, we would like to review the roles of computers and human beings, and examine the future role of computer.

③ Workshop C "Technology and Art"

Chaired by : Kenji Ekuan
(Director, GK Industrial Design Institute)

Introductory address C₁ : Takeshi Moriya
(Associate Professor, National Museum of Ethnology)

Introductory address C₂ : Shigeharu Sugita
(Associate Professor, National Museum of Ethnology)

Introductory address C₃ : Otoichi Kitamura
(Professor, Kyushu Institute of Design)

Program (2)

August 20th (Friday)

Keynote Speech II (10:00 10:50)

"Microelectronics and the Challenge to Human Beings"

by A. Chapanis (Former President of IEA and Professor of
Johns-Hopkins University)

Note) IEA: International Ergonomics Association

As the microelectronic technology progresses, fields of application have also been widening, to include every aspect of human life. Many disputes as to the influence of robots on human society are heard, both optimistic and pessimistic. But, why do human beings confront the future of science and technology so enthusiastically?

Workshops (Introductory addresses: 11:10 ~ 12:10, Panel discussion:
12:15 ~ 13:10)

◎ Workshop D "Human Beings and Aviation/Space Technology"

Chaired by : Hidemaro Nagano
(Advisor, Japan Air Lines Co., Ltd.)

Introductory address D₁ : Isao Kuroda
(Commander of Aeromedical Laboratory,
J.A.S.D.F.)

Introductory address D₂ : Hiroyuki Matsumiya
(National Space Development Agency)

Introductory address D₃ : Teruo Sawada
(Professor, University of Osaka Prefecture)

Introductory address D₄ : J. Lauber (NASA)

The advance in microelectronics is inseparable from that in aerospace technology. Microelectronics has accelerated space development and made flying safer. What should be the path followed by aerospace technology, if we are to create harmony among human beings and their surroundings.

◎ Workshop E "Medical Treatment and Technology"

Chaired by : Masamitsu Oshima
(Chairman of Directors, the Medical Information System Development Center)

Introductory address E₁ : Hiroshi Inada
(Assistant Professor, Osaka University)

Introductory address E₂ : Kageyu Noro
(Professor, University of Occupational and Environmental Health)

Introductory address E₃ : Yasuhisa Sakurai
(Professor, Tokyo Women's Medical College)

Introductory address E₄ : Kazuhiko Atsumi
(Professor, University of Tokyo)

The technological aspect of medical treatment has been progressing dramatically with the introduction of computers and robots, the systematization of data in medical engineering, and the utilization of artificial organs and limbs. To permit more advanced diagnosis, treatment, prevention and more satisfactory nursing and rehabilitation, while not neglecting the humanitarian aspect, we would like to discuss the possibility of further technological contributions to medical treatment.

◎ Workshop F "The Energy Industry and Safety"

Chaired by : Sakyō Komatsu (Author)

Introductory address F₁ : Yoji Umetani
(Professor, Tokyo Institute of Technology)

Introductory address F₂ : R. Pearson
(Professor, North Carolina State University)

Introductory address F₃ : Ryohei Maeda
(The Kansai Electric Inc.)

In developing the energy industry and solving future energy problems, robots shall be applied more actively in work at sites dangerous to human beings, including nuclear power reactors, coal mines, underground, seabed, and outer space. We would like to discuss the safety problems in energy development and the introduction of robots.

Break (13:10 ~ 14:35)

Reports from Workshops (14:40 ~ 16:15)

Each workshop (A, B and C on the first day, and D, E, and F on the second day) will report on its meetings.

Conclusive Address (16:15 ~ 16:45)

by Sadao Sugiyama (Professor, Kwansai Gakuin University)

Closing Ceremony (16:45 ~ 17:00)

Closing address: Kiyoji Asai
(President, Japan Society of Human-Robotics)

Agenda of Symposium

August 19th (Thursday)

9:00	10:00	11:00	12:00	1:00	2:00	3:00	4:00	5:00	7:00
Registration	Opening Ceremony (Lecture Hall)	Keynote speech I (Lecture Hall)	Responses to robot intro- duction (Lecture Hall)	Orientation about lunch break and place for workshop	Lunch break	Introductory address	Workshops	Panel discussion	Welcome Reception (Reception Hall)
							(Coffee break)		Movement

August 20th (Friday)

9:00	10:00	11:00	12:00	1:00	2:00	3:00	4:00	5:00	
Registration	Keynote speech II (Lecture Hall)	(Coffee break)	Introductory address	Workshops	Lunch break	Workshop Report	Panel discussion	Closing Ceremony (Lecture Hall)	
									D 1.2.3.4 (Lecture Hall)

English ↔ Japanese simultaneous interpretation will be performed at each meeting place.

FORM
A

Osaka Symposium—Application

I apply for the participation in the Symposium.

Name: _____

Name of organization belonging to: _____

Address: _____

Telephone: _____ (Extension) _____

◦ Fee US\$100

◦ Payment

When I pay the fee through bank, I will use the name of attendant/
 the name of organization belonging to, as the name of payer.
(Please check either blank.)

◦ Selection of workshops

August 19th A B C
August 20th D E F

◦ Welcome reception (All Symposium attendants will be invited. However,
please check for our information.)

Attend Not attend

Date: _____

Signature: _____

Please send this form to the below.

Office of Osaka Symposium
The Ethnological Foundation of Japan, Senri Office
1-1, Expo Grounds, Senri, Suita City, Osaka 565

FORM
B

Osaka Symposium

Application form for hotel accommodations and tours

* Please complete (in block letters or typewritten) and return this form by July 31, 1982 to:

Convention Department
Japan Travel Bureau, Inc., Kyoto Office
Kyoto-ekimae, Shimogyo-ku, Kyoto 600, Japan

Name: Prof./Dr./Mr./Mrs./Miss

(Family Name) (First Name) (Middle Initial)

Mailing Address: _____

(Country)

Accompanying person(s), if any: 1. _____
2. _____

I/We will arrive on _____ at _____
(Date/Month) (Airport)
by _____
(Flight No.)

I/We will travel to Japan with group tour
Name of Group: _____ by _____
(Travel Agent)

I. Hotel Accommodations

Name of Hotel	Type of room	Period of stay	Deposit (a)
<input type="checkbox"/> Senri Hankyu	__ single(s)	Check-in _____ (Date)	@¥10,000
<input type="checkbox"/> Toyo Hotel	__ twin(s)	Check-out _____ (Date)	x __ person(s)

II. Excursions

Course No. 1 @¥10,000 x __ person(s) = ¥ _____ (b)
Course No. 2 @¥9,500 x __ person(s) = ¥ _____ (c)

GRAND TOTAL OF REMITTANCE (a) + (b) + (c) = ¥ _____

Banker's check to the order of Japan Travel Bureau, Inc., Kyoto
 Bank transfer through _____ to the account No.
290030, Fuji Bank Kyoto Branch, Karasuma-Shijo, Kyoto 604, Japan

Date: _____ Signature: _____

* This application will be valid upon receiving CONFIRMATION from JTB.

8TH CONGRESS OF THE INTERNATIONAL ERGONOMICS
ASSOCIATION

hosted by the JAPAN ERGONOMICS RESEARCH SOCIETY

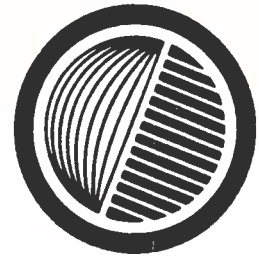
23-27 August, 1982

Nihon Toshi Center, Hirakawa-cho, Chiyoda-ku, Tokyo, Japan.

Congress Chairman: Masamitsu Oshima

Advisory Board: Harry L. Davis, Etienne P. Grandjean, Brian Shackel,

*Erasmus van
fermelani*
IEA82



May 15, 1982

Dear my friend;

Osaka Symposium on the Contribution of Micro-
electronics to the Enhancement of Human Life

19 - 20 August, 1982, Osaka

Here enclosed please find the final announcement of the Osaka Symposium on the Contribution of Microelectronics to the Enhancement of Human Life.

If you participate in IEA '82 (the 8th Congress of the International Ergonomics Association) to be held in Tokyo from August 23 through 27, you should join the Osaka Symposium, too, before IEA '82, because the program has been carefully planned so that all of the participants of IEA also can fully enjoy the Symposium.

I am looking forward to seeing you soon either in Osaka or in Tokyo.

Yours sincerely,

Sadao Sugiyama
Advisor for Osaka Symposium
Council Member, IEA

Osaka Symposium on the Contribution of Microelectronics
to the Enhancement of Human Life

National Museum of Ethnology

August 19th and 20th, 1982

Robots, automated machinery, and data processors (including household electric apparatus, vending machines, and robots for medical treatment, aviation and industrial use) are the products of advanced microelectronics; their present influence upon human life is enormous. How can we best utilize these microelectronic machines in serving human beings and their societies? We would like to seek out new possibilities.

Host

Japan Society of Human-Robotics

President: Kiyoji Asai
(Professor, University of Osaka Prefecture)

Osaka Symposium-Steering Committee

Chairman : Toshihiro Tsumura
(Professor, University of Osaka Prefecture)

Advisory Board

Tadao Umesao (Director, National Museum of Ethnology)
Sakyo Komatsu (Author)
Hidetoshi Kato (Professor, Gakushuin University)
Sadao Sugiyama (Professor, Kwansei Gakuin University)
Kaoru Ando (Advisor, Fujitsu, Ltd.)
Ichiro Kato (Professor, Waseda University)
Saburo Tsuji (Professor, Osaka University)

(No special order is observed.)

Sponsors

(Includes those still under negotiation.)

Ministry of International Trade
and Industry

The Science Council of Japan

National Museum of Ethnology

Osaka Prefecture

Osaka City

Osaka Chamber of Commerce and Industry

The Ethnology Foundation of Japan,

Senri Office

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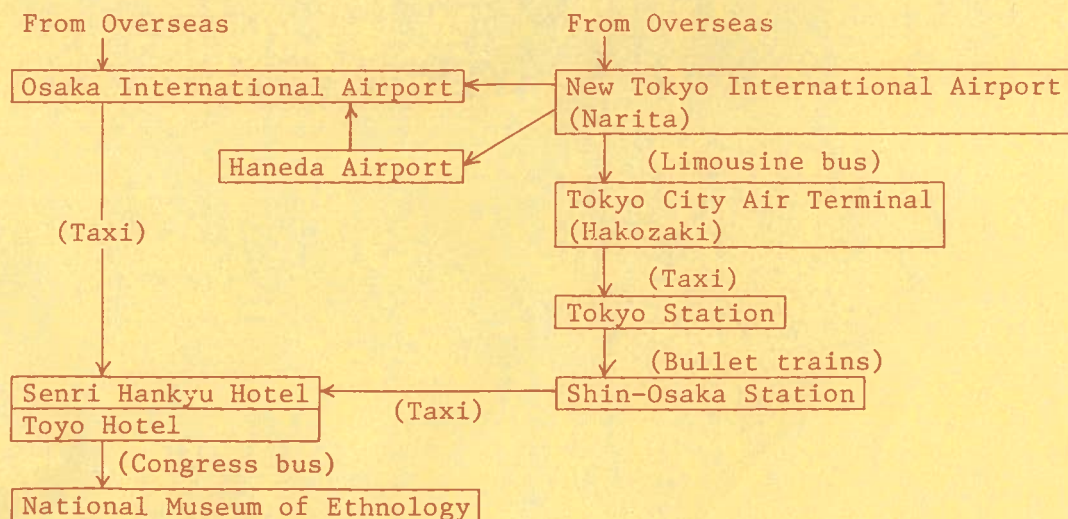
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Denmark	Dominican Republic	Finland
France	Germany (Fed. Republic)	Greece
Guatemala	Honduras	Iceland
Iran	Ireland	Israel
Italy	Liechtenstein	Luxembourg
Malta	Mexico	Netherlands
New Zealand	Norway	Pakistan
Peru	Portugal	El Salvador
San Marino	Singapore	Spain
Surinam	Sweden	Switzerland
Tunisia	Turkey	United Kingdom
Uruguay	Yugoslavia	

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Foreign Currency Exchange

It is highly recommended that the participants bring a minimum of ¥5,000 in cash from the airport. (Foreign currency can be converted into Japanese yen at the bank of the airport.)

There are several bank offices within walking distance of the Senri Hankyu Hotel and Toyo Hotel, but no offices near the symposium hall. Open hour of the city bank offices is from 9:00 a.m. to 3:00 p.m. on weekdays and from 9:00 a.m. to noon on Saturdays. They are closed on Sundays and National holidays. Exchange is also available at the cashier of the hotel (24 hours open.)

Weather and Climate

The average temperature and humidity of August in Osaka are 27°C and 70%, respectively. The symposium hall and hotels are of course air-conditioned.

Social Events

For all the participants and their family members of the symposium, the following social events are planned by the Organizing Committee. Those who wish to attend the following excursion are requested to complete the application form (Form B) and send it to the JTB Kyoto Office.

- 1) Excursion No. 1 on August 21, Saturday
Fee: ¥10,000/person

Full-day excursion to Kyoto city which is the first permanent capital of Japan. This course will include Nishijin Textile Center, Nijo Castle, Heian Shrine and Shoren-in Temple (Green tea and "Koto" music will be available inside of the garden.) Lunch will be served at beautiful Japanese Restaurant.
(This excursion is the same as described in IEA '82 Final Announcement.)

- 2) Excursion No. 2 on August 21, Saturday
Fee: ¥9,500/person

Full-day excursion to Nara city which is an ancient capital of old Japan. This course will include Deer Park, Todaiji Temple (biggest Buddha Image), Kasuga Shrine and Kofukuji Temple. Lunch will be served at Nara Hotel.

Official Agents for IEA'82 and Osaka Symposium

- (1) Carrier: The Organizing Committee has appointed Japan Air Lines (JAL) as the official carrier for IEA '82 and Osaka Symposium.

(2) Travel Agent

Domestic: Japan Travel Bureau, Inc. (JTB)

Tokyo: 13-1, Nihonbashi 1-chome, Chuo-ku, Tokyo 103
Tel: 03-271-2346

Kyoto: Higashi Shiokoji-cho, Shimogyo-ku, Kyoto 600
Tel: 075-361-7241

Overseas: (From Europe) MEON TRAVEL AGENCY, 32, High Street,
Petersfield, Hampshire, England
Tel: 0730-4011

(From U.S.A.) GARBER TRAVEL, 1406 Beacon Street,
Brookline, Mass. 02146, U.S.A.
Tel: (617) 734-2100

- ◎ The carrier and the travel agents specified above are willing to provide you with information on group flight, etc. for IEA '82 (Aug. 23 ~ 27, Tokyo) and this Symposium.

27 J
5 US
1 GB

Program (1)

August 19th (Thursday)

Registration (9:00 ~ 10:00 in front of the Lecture Hall; please take your registration card with you)

Opening Ceremony (10:00 ~ 10:20)

Opening address: ° Kiyoji Asai)
(President, Japan Society of Human-Robotics)

° Tadao Umesao)
(Director, National Museum of Ethnology)

Keynote Speech I (10:20 ~ 11:10)

"Robot Anthropology: Machinery as Partner"

by Sakyō Komatsu (Author))

When we review human history in terms of the relationship between tool/machine and human being, we notice that machinery has always been a capable assistant of human beings and has thus contributed to the realization of human dreams, though sometimes bringing hardship to their human "parents"; various current problems concerning robots will be reviewed, with the above fact in mind. Robots are in a way the children of human beings. They may sometimes be too strong to be controlled by their "parents". However, what do we hope our "children" to be, as "parents"?

Reports (11:15 ~ 12:35)

"How Has Society Received Robots?"

Case 1: In Europe)
by R. G. Sell (Official of British Labour Ministry) GB

Case 2: In the U.S.A.)
by D. Thompson (Professor of Stanford University) US

Case 3: In Japan)
by Yukio Hasegawa (Professor, Waseda University) J

Break (12:35 ~ 14:15)

Workshops (Introductory addresses: 14:20 ~ 15:20, Panel Discussion:
15:40 ~ 16:40)

◎ Workshop A "Robots and Human Beings"

— The Future of Automated Machinery —

- Chaired by : Ichiro Kato (Professor, Waseda University) J
- Introductory address A₁ : Saburo Tsuji (Professor, Osaka University) J
- Introductory address A₂ : Hiroyuki Yoshikawa (Professor, the University of Tokyo) J
- Introductory address A₃ : D. Thompson (Professor, Stanford University) V S

- [
- Optimal System and Adaptive System
 - FMS (Flexible Manufacturing System) and Metabolic System
 - From Coexistence and Collaboration to Life Together
-]

◎ Workshop B "The Computer and Daily Life"

- Chaired by : Kaoru Ando (Advisor, Fujitsu, Ltd.) J
- Introductory address B₁ : Hiroaki Terada (Professor, Osaka University) J
- Introductory address B₂ : Ryoichi Mori (Professor, Tsukuba University) J
- Introductory address B₃ : R. Hirsch (IBM) V S

[

Computers are currently being developed to be more compact and more decentralized in function. They are incorporated into personal data processors, automated machinery and household electric appliances and have come to be very common in our daily life. Under such circumstances, we would like to review the roles of computers and human beings, and examine the future role of computer.

]

◎ Workshop C "Technology and Art"

- Chaired by : Hidetoshi Kato (Professor, Gakushuin University) J
- Introductory address C₁ : Takeshi Moriya (Associate Professor, National Museum of Ethnology) J
- Introductory address C₂ : Shigeharu Sugita (Associate Professor, National Museum of Ethnology) J
- Introductory address C₃ : Otoichi Kitamura (Professor, Kyushu Institute of Design) J

As the relationship develops between machines and human beings, not only technology but also artistic considerations have come to be required in the design of machinery. It means that from now on, the preference will be for machinery which harmonizes with human feelings. The physical capabilities of robots and computers, although machines, have begun to approach those of human beings. On the other hand, how artistic can technology become?

Reception (17:00~19:00 at Reception Hall)

All participants will be invited.

Japan
Air
Space
Defence
Forum

Program (2)

August 20th (Friday)

Keynote Speech II (10:00 - 10:50)

"Microelectronics and the Challenge to Human Beings"

by A. Chapanis (Former President of IEA and Professor of
Johns-Hopkins University)

US

Note) IEA: International Ergonomics Association

As the microelectronic technology progresses, fields of application have also been widening, to include every aspect of human life. Many disputes as to the influence of robots on human society are heard, both optimistic and pessimistic. But, why do human beings confront the future of science and technology so enthusiastically?

Workshops (Introductory addresses: 11:10 ~ 12:10, Panel discussion: 12:15 ~ 13:10)

◎ Workshop D "Human Beings and Aviation/Space Technology"

Chaired by : Hidemaro Nagano
(Advisor, Japan Air Lines Co., Ltd.)

)

Introductory address D₁ : Isao Kuroda
(Commander of Aeromedical Laboratory,
J.A.S.D.F.)

)

Introductory address D₂ : Hiroyuki Matsumiya
(National Space Development Agency)

)

Introductory address D₃ : Teruo Sawada
(Professor, University of Osaka Prefecture)

)

Introductory address D₄ : J. Lauber (NASA)

US

[The advance in microelectronics is inseparable from that in aerospace technology. Microelectronics has accelerated space development and made flying safer. What should be the path followed by aerospace technology, if we are to create harmony among human beings and their surroundings.]

◎ Workshop E "Medical Treatment and Technology"

Chaired by : Masamitsu Oshima
(Chairman of Directors, the Medical Information System Development Center)

)

Introductory address E₁ : Hiroshi Inada
(Assistant Professor, Osaka University)

)

Introductory address E₂ : Kageyu Noro
(Professor, University of Occupational and Environmental Health)

)

Introductory address E₃ : Yasuhisa Sakurai
(Professor, Tokyo Women's Medical College))

Introductory address E₄ : Kazuhiko Atsumi
(Professor, University of Tokyo))

[The technological aspect of medical treatment has been progressing dramatically with the introduction of computers and robots, the systematization of data in medical engineering, and the utilization of artificial organs and limbs. To permit more advanced diagnosis, treatment, prevention and more satisfactory nursing and rehabilitation, while not neglecting the humanitarian aspect, we would like to discuss the possibility of further technological contributions to medical treatment.]

◎ Workshop F "The Energy Industry and Safety")

Chaired by : Sakyo Komatsu (Author))

Introductory address F₁ : Yoji Umetani
(Professor, Tokyo Institute of Technology))

Introductory address F₂ : R. Pearson
(Professor, North Carolina State University) VS

Introductory address F₃ : (to be announced)

[In developing the energy industry and solving future energy problems, robots shall be applied more actively in work at sites dangerous to human beings, including nuclear power reactors, coal mines, underground, seabed, and outer space. We would like to discuss the safety problems in energy development and the introduction of robots.]

Break (13:10 ~ 14:35)

Reports from Workshops (14:40 ~ 16:15)

Each workshop (A, B and C on the first day, and D, E, and F on the second day) will report on its meetings.

Conclusive Address (16:15 ~ 16:45)

by Sadao Sugiyama (Professor, Kwansai Gakuin University))

Closing Ceremony (16:45 ~ 17:00)

Closing address: Kiyoji Asai
(President, Japan Society of Human-Robotics))

Agenda of Symposium

August 19th (Thursday)

9:00	10:00	11:00	12:00	1:00	2:00	3:00	4:00	5:00	7:00			
Registration	Opening Ceremony (Lecture Hall)	Keynote speech I (Lecture Hall)	Responses to robot introduction (Lecture Hall)	Orientation about lunch break and place for workshop	Lunch break	Workshops			Movement	Welcome Reception (Reception Hall)		
			Case 1: In Europe			Case 2: In the U.S.A.	Case 3: In Japan	Introductory address			(Coffee break)	Panel discussion
			A 1.2.3 (Lecture Hall)			B 1.2.3 (Meeting Room No.4)	C 1.2.3 (Meeting Room No.5)	Same as left				Same as left

August 20th (Friday)

9:00	10:00	11:00	12:00	1:00	2:00	3:00	4:00	5:00				
Registration	Keynote speech II (Lecture Hall)	(Coffee break)	Workshops		Lunch break	Workshop Report				Closing Ceremony (Lecture Hall)		
			Introductory address	Panel discussion		Workshop A	Workshop B	Workshop C	Workshop D		Workshop E	Workshop F
			D 1.2.3.4 (Lecture Hall)									

English ↔ Japanese simultaneous interpretation will be performed at each meeting place.

OSAKA 19.8.82

11^h15 - 12^h35

80'

27' pour
chaun

may - HOW HAS SOCIETY RECEIVED ROBOTS?
LAST 1: IN EUROPE

July - SOCIETY'S ACCEPTANCE OF ROBOTS IN FRANCE

aug - ROBOTS IN EUROPE

Introduction

- Difficulty to prepare a text ~~in~~ a very short time (5 days before I leave France)
- Difficulty to speak about the subject *Evolution* (what parts of the society?) and too limited (France) I will speak merely ~~about~~ about industrial production part of the society & and I will speak of Europe.
- Difficulty to accept the background of the Symposium

Background of the symposium

- ~~the~~ big program of french government
- Overseas of computers and robots
- Universal Technology (p. 3.) "..... and created the cultures unique to each race(?)". Recently, however, the trend has been for the cultural traits of one race to be immediately incorporated into the cultural sphere of another - therefore it can be said that the future effect of microelectronic technology depends ^{upon how} ~~on~~ each race incorporates it into its own society
- Repetition of old story of industrial revolutions
 - steam
 - mechanics
 - electricity
 - oil
 - nuclear energy.

- ~~Pro~~ Anthropology : incorporation - rejection (2)
of biology in an existing structure - that is not racial

- ~~Biology~~ New biology much more important
for civilization than microelectronics : vaccination,
antibiotics, anti-radiation, female pill, preservation of food

Small ~~is~~ panorama of Europe

Between countries
- great inequalities in ~~technology development~~ ^{in fundamental}
research, technology research and development. ^{Different} ~~As~~ experiences:
military, ~~space~~ and space technology, nuclear energy, oil
research, computers and microelectronics production, manufacturing
technology (automated chemistry, ~~and~~ laser machines)

medical technology - Stay of gas ducts: what is American:
radiation free techniques

- great difference in economy ^{and} finance politics:
dependence to USA or not USSR? East Germany.

- great difference in social politics

- closed country to migration: Sweden like Japan
strong robotization.

- open country to migration: France, Germany, GB
doubled ^{workers} foreigners in 10 years (France 2-4 millions)
slow robotization. Recent change.

Problems in robotization and computerization

- Computers, freedom, citizen rights, system of power
- Computer, knowledge, control of the keys, destruction of
easy access: journals, books, loss of manual techniques: computation,
long term memory
- Computers and organization. Reinforcement of old.

social structure "computer says ..."

- Computers and limits of mathematical modeling
- Computers and telemeasurement : decision on the

uncertain -

- Computers and health : very & small effects - High

costs

- Computers and employment : ~~is it~~ is it as a technological

crisis or - crisis of distribution of areas of production and
 by the way a political crisis

- crisis of social program : too quick ^{People} think that
 everything is socially ~~possible~~ possible.

A special look on ~~robotics~~ shopfloor

- modelisation of human movement : painting

- ~~high~~ mental overload in plants and offices

- robots and robotized systems : frequency of stops

- coordination between computers, mechanics and by hand
 it works on planes why not in factories? lot of reasons.

- difficulties of maintenance checking and maintenance

- so low working time in nuclear reticulation factories

10% France, 15% ~~Japan~~ Japan

Difficulties for general population

- a special problem : the ~~language~~ coded language

Revisiatur du livre en anglais

KONG (COREE

SUGIYAMA

KOGI

OSHIMA

TANAKA

SPYROPOULOS

PURSWELL

PHOON

RUBIO

SCRIANO

CORLETT

A lot of experiments have been realized to obtain a description of the circadian rhythmicity of mental performances. For KLEITMAN (1963), mental performances covary with central temperature, a maximum being observed at the end of the afternoon. But recently FOLKARD and all. (1976) have shown that the circadian curves of performance are different when the cognitive and storage loads of the task are ~~at~~ at diverse levels. In the case of high storage load, the peak appears in the morning with a monotonous decrease during the day.

Little is known about the opposite relation, that is the influence ~~of sleep onset~~ of ~~sleep onset~~ on following sleep and specially on sleep onset, of the quantity and quality of cognitive activity prior to the normal sleep onset time. One may remark that the day time when the night shift journalists we have studied have to perform eventually heavy cognitive tasks, is situated ^{in the nycthemere} nearly at the opposite of the performance peak described by FOLKARD and all. It is the contrary of what ^{these} ~~the~~ authors have suggested for work organization (FOLKARD and MONK 1979)

In the case of ~~high~~ our journalists, it seems that the conflict between ~~the~~ circadian rhythmicities and the task demands is violent enough to disturb simultaneously the sleep propensity. It is classical to consider that the latter is a function of the relative position of sleep onset time

in the ~~next~~ circadian temperature variation. But, if ~~the~~ we know after HUGUES and FOLKARD (1976) that cycle adaptation to night shift is two times quicker for high loaded cognitive task performance than it is for central temperature and low loaded cognitive task performance, ~~this~~ ^{this} phenomenon cannot be taken in consideration for journalists who are working permanently on night shift and who are submitted from time to time to highly loaded tasks.

In fact, it is interesting to note that a low loaded cognitive task ~~is~~ realized at the same time of the day (evening shift) does not seem to provoke the same conflict. The sleep onset ^{time} is not modified, ~~the~~ In this case ~~the work period of performance is much nearer to~~ ^{the} ~~the~~ ^{the} work period is much nearer to the moderate ^{load} cognitive task circadian peak.

As COLQUHOUN and RUTENFRANZ (1980) pointed: these questions are "particularly pertinent to the design of shift systems of "new" industries, such as computer operations, where the job is quite different from those in the traditional "shift working occupations."

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TAYLOR and FRANCIS LTD LONDON

sleep duration (HOURS)

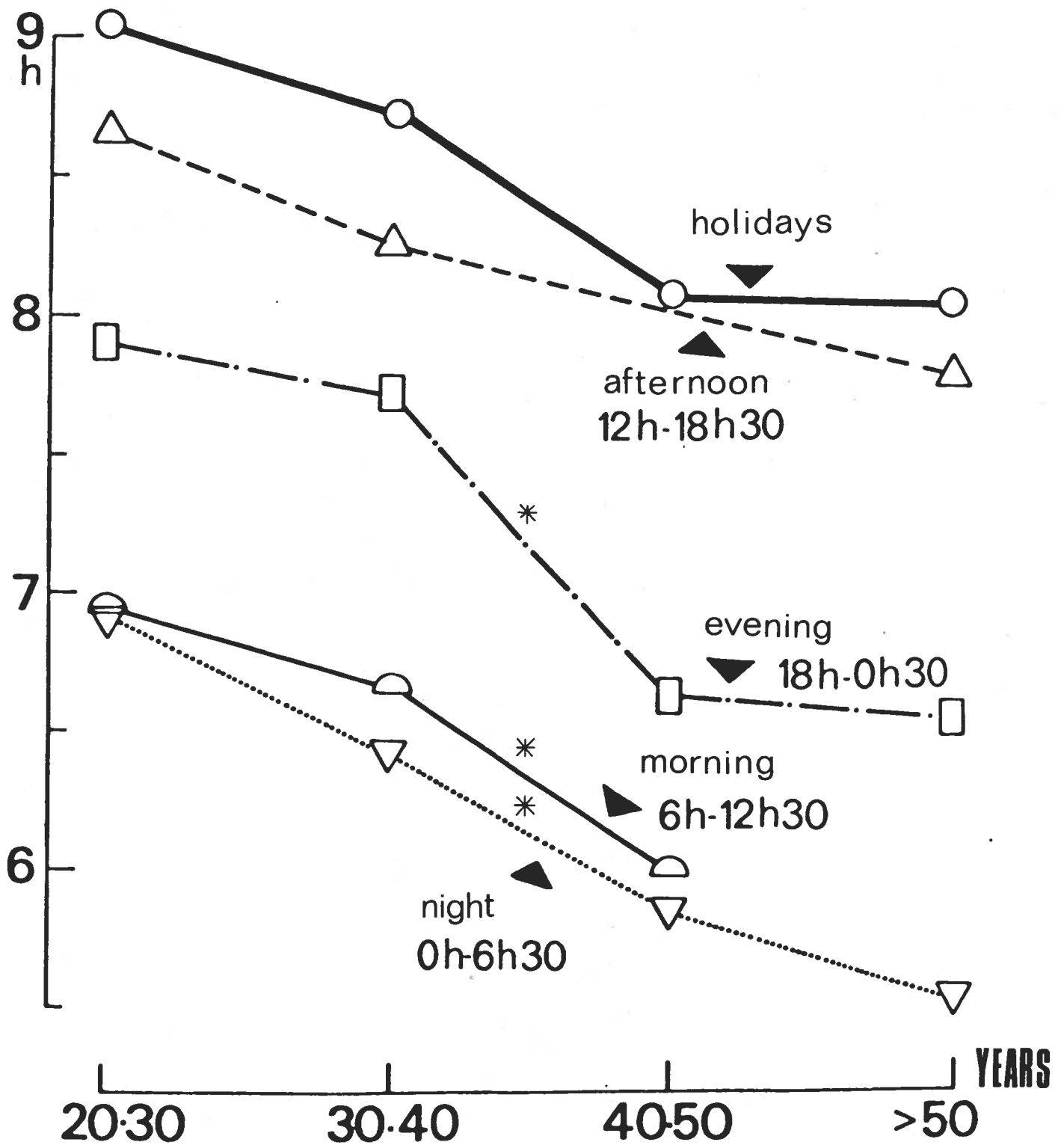


Fig. 1 - Mean sleep duration in terms of age for journalists. For the 30-40 years old group, the standard deviations are : $\pm 60'$ during holidays; $\pm 40'$ Morning; $\pm 52'$ afternoon; $\pm 39'$ Evening and $\pm 65'$ for the Night. Asterisks indicate level of significance for differences between shifts (two tailed t-test $p < .05$)

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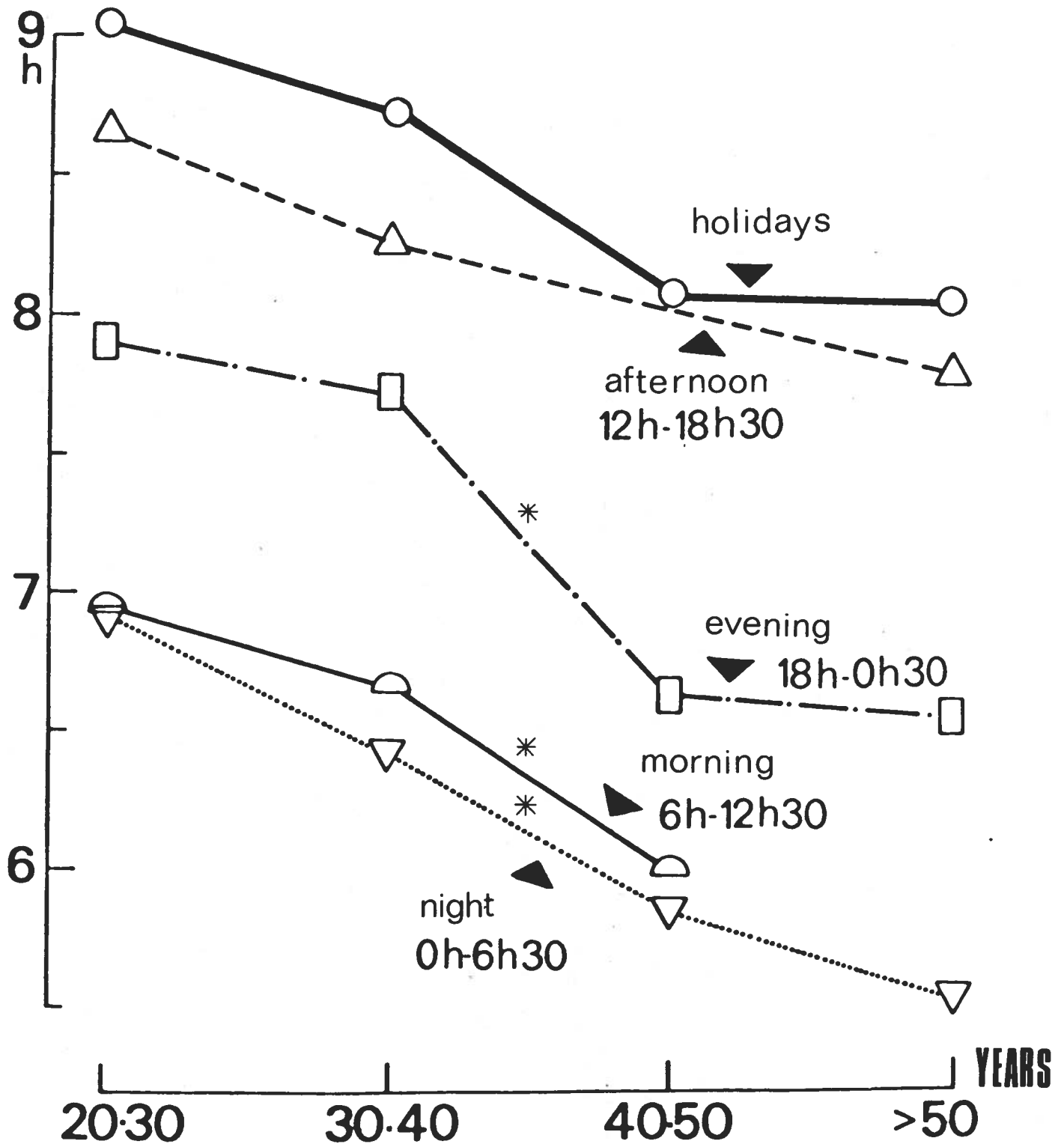


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ERGONOMICS IN DEVELOPING COUNTRIES

Alain WISNER^{*}, Simon DONGMO^{**}, Leda LEAL FERREIRA^{***}, Clarissa RUBIO^{****}, Noureddine SAHBI^{*****}
Conservatoire National des Arts et Métiers^{*}, Manufacture Nationale des Tabacs^{**}, Fundacentro^{***},
University of the Philippines^{****}, Compagnie des mines de phosphates^{*****}
Paris France^{*}, Yaoundé Cameroun^{**}, Sao Paulo Brasil^{***}, Quezon City Philippines^{****}, Gafsa
Tunisie^{*****}.

Summary

Transfer of technology is now a powerful tool of industrialization of many countries who have not yet a full development of their economies. The success of this transfer is very unequal from one receiving country to another and from one plant to another. Ergonomic work analysis may explain lot of the deceptions and suggest solutions. In many cases the lack of success is rooted in the underestimation of the informal contribution of the workers of the exporting country to the satisfactory behaviour of the system. A better analysis of the geographical, biological and cultural differences between exporting and receiving countries induces different choices of technology and produces many recommendations about the conditions of a successful transfer. This body of knowledge strongly related to ergonomics could be called anthropotechnology.

A large movement --

Ergonomics in developing countries is now a vast area of research and action which is growing quickly in relation with Nord-South trade and soon with the South-South. Among the Societies taking part in IEA, there is now the Mexican Society, there will be soon probably, an Asean, a Bresilian, an Indian, a Maghrebin Society. Since 1976, a big effort has been realised by ILO to promote better working conditions in industrially developing countries through PIACT (Programme International pour l'Amélioration des Conditions de Travail - International program for better working conditions). An important step will be taken in Mexico in 1983 or 1984 with an international meeting on ergonomics in developing countries.

-- mainly in semi-industrialized countries --

But if one carefully looks at the countries that are building an ergonomic activity connected with their economic development, it can easily be observed that they are all members of the intermediate category recently isolated by the general director of World Bank as semi industrialized. They all have a considerable industry and a strong intellectual potential in universities and research centers. Most are themselves exporters of technology and taking part in the more and more active South-South trade.

-- and inside countries

It does not mean that other countries who are not yet in this semi privileged situation do not need ergonomics and that some important initiatives are not sometimes observed there. Neither does it mean that all parts of the semi industrialized countries have the same relation with economic development and ergonomics. Many of the industrially developing countries moving toward ergonomics are subcontinents (Brazil, India, Mexico, and are extremely diverse from one part to another. It seems that the transfer of technology inside one country is a very new and important subject in view of decentralization.

A main theme : anthropometry --

Among the classical themes of ergonomics, anthropometry has been the first studied but the knowledge is not yet sufficient. A. MANUABA, R.N. SEN, B. THU have shown the rather

little height of South Asia workers but N. SAHBI has not found any significant difference between miners in South Tunisia and in France. Large studies are done in Brasil (L.L. FERREIRA).

-- in relation with migrations

A very important question even for anthropometry is the knowledge of the population that will in fact use the material. In Europe, for example most of the miners and automobile workers are coming from abroad (mainly North Africa and Western Asia). In Middle East, many industrial workers are coming also from Asia and Africa but professionals and middle managers are frequently coming from the Philippines or Tunisia. Many problems cannot be solved without attention to these huge population movements (C. RUBIO et all.).

Physical capacity and work and life situations

Another important field of ergonomics in developing countries is physical fitness. Muscular strength has complex relations with body height, nutritional status, parasitism and heat. Very interesting studies have been produced again by A. MANUABA, R.N. SEN and B.THU in this area. Some small workers are quite strong if they receive enough food. (R.N.SEN). Many workers dont eat enough to produce as much as they are expected to do because they share food with an enlarged family. Many tropical workers have to use their forces in two or three activities (agriculture, artesanal production, tourism, like in BALI- A. MANUABA). A vegetarian diet, frequent pregnancies among women, and parasitism (ankylostemiasis, bilharziosis) may provoke such a low level of iron, and thereby of hemoglobin that there is a linear relation between the level of hemoglobin and production (tea gathering in SRI LANKA, sugar cane cutting in GUATEMALA). Many remarkable studies have been done relating heat and health or even mortality among miners (CH. WYNDHAM), relating heat and nutritional status among hotel workers (MANUABA). Coming back to industry, R.N. SEN has recently produced a very comprehensive report on ergonomic principles in the design of factories in hot climates.

Human ressources and antropotechnology

It is clear from these examples that technology cannot be easily transfered with success without careful studies of the population of workers of the importing country, that the results of researches on human ressources are an important part of ergonomics knowledge. It is clear again that the study of climatic, social and cultural conditions is equally necessary for a sucessful transfer. These different aspects of knowledge and the methodology of implementation in conception and/or transfer of technology could be called antropotechnology.

Ergonomics in relation with national technology

If usually these considerations are used for technology elaborated in foreign countries, they are also necessary in cases where tentatives are done in industrially developing countries themselves by research center engineers. The International Rice Research Institute (IRRT) in LOS BANOS (Philippines) and the Central Rice Research Institute (CPRI) in Cuttack (India) have each produced a rice planting machine. These two machines allow a man to plant ten times as many rice shoots as he could by hand; however, this requires 2.5. times as much physical effort, wich is unacceptable as P. NAG has shown.

Even toxicology has to be considered

In relation with these physiological considerations, one has also to think to the very severe toxicological problems that arise many times in relation with the specific conditions of work in industrially developing countries (for exemple the pesticides used in brasilian sugar cane plantations M.R. CHUAIRA DA SILVA, U. MALUF). Avery good book on this subject has been published recently in SINGAPORE.

Work analysis

In many cases, the difficulties are even more hidden The "soft" part of the technology : methods manuals, training are transfered not only without understanding the ways of work and life of receiving countries but even more without realizing how things are really working in the exporting country. There is a difference between real work and the work as it prescribed by the engineers and organizers. What workers really do, due to their intelligence and experience

is usually unknown and not transferred to the receiving country S. DONGMO in analysing the way tobacco factory workers are operating in France has seen that they are completely neglecting the automated signalisation that is in fact inadequate but that they are using very sophisticated pattern of observations transmitted from one worker to another. However what is transmitted to the receiving country is a very formal use of the automated signalisation. Sometimes there is a complex mixture of these cultural and psychological aspects with more material facts. In the phosphate mines in South Tunisia, the saline nature of the ore and the insufficient use of soluble oil produces the jamming of the hydraulic pillars in such a proportion that the maintenance unit is overloaded and the supporting system dangerous (N. SAHBI).

Recommandations

There are many industrially developing countries where excellent ergonomic teams exist but too frequently these teams are living with difficulty. They are limited by poor facilities, limited library and - as it can be observed at IEA congresses - little travel allocations. One of the reasons of these limitations is of course the volume of the Gross National Product of these countries but also the fact that many governments have not yet realized that ergonomics and anthropotechnology are not only necessary for humanitarian reasons but for the success of transfer of technology. Too many imported machines or factories have a low productivity for reasons that ergonomics can detect and to which reasonable solutions can be found. One may hope that the impact of the international action can help to stress this point. It is the main reason for the MEXICO meeting organized by IEA, ILO and WHO. Industrially developed countries are also able to contribute and they do in receiving scholars from industrially developing countries. There is a great danger of brain drain if the researches are not connected with the real problems of the own country of the scholars but with the questions connected with research programs of the receiving country. This orientation is not at all easy in relation with the rules of students international exchanges. But as far the real finality of the training of students is considered, the results of these exchanges are beneficial as the coauthors of this text can testify. The past 10 years, 40 scholars coming from more than 15 industrially developing countries have stayed 1 to 3 years at the CNAM ergonomics laboratory in PARIS. Nearly all of these have come back to Africa, America or Asia and they contribute to ergonomics in their own countries.

LANGUAGE AND COMPUTER SYSTEMS

Work analysis and cognitive load

The expanding number of computers used in tertiary activities has raised working conditions problems. Usually, these questions have been approached from the view point of the qualities of the screen and environmental conditions. The different teams of the work physiology and ergonomics laboratory of the CNAM have mainly considered the cognitive activity, using the concepts of psycholinguistics and information processing in relation with some behavioral and physiological measurements such as those of eye movements and evoked potentials.

If some aspects of the work at computer terminals have been studied in laboratory, most of the researches have been performed in real situations : different journals printing shops, an international news agency, the french census analysis center, a new telecommunication terminal, the control room of an oil refinery ...

All these studies have shown a very wide range of cognitive loads explaining why some situations are rather easily accepted by the workers and why others need such an hyperexcitation of the brain that some neurotic phenomena can be observed and some effects on consecutive sleep demonstrated.

A very precise relation can be established between the density of the text read, measured by linguistic techniques and the frequency of eye fixations and between the complexity of the codification and the duration of eye fixations. With the same type of techniques it is possible to show why the redaction of news agency dispatches are different when V.D.T. are used from the former redaction with paper and pencil.

More "intelligent" V.D.T. may help to come back to a better redaction quality taking in account the different macrostructures of the original papers from which the dispatch is built.

Semantics is another important question to be considered not only for the professional users but also for the public who will use more and more complex computer systems. How far the semantic field prepared inside the memory of the computer is analogous to the semantic fields of the different users and how the very special retrieval mechanism of human memory can be simulated in the future computers ?

Lot of answers have be elaborated is this new field of relations between linguistics and ergonomics.

WISNER Alain M.
Professor of work physiology and ergonomics
Conservatoire National des Arts et Métiers
41 rue Gay-Lussac 75005 PARIS FRANCE
Tél. 354.18.27

LANGUAGE AND COMPUTER SYSTEMS

(Work analysis and cognitive load)

Alain WISNER ^{*}, Bernard PAVARD ^{*}, Leonardo PINSKY ^{**}

^{*} Conservatoire National des Arts et Métiers, ^{**} Centre National de la Recherche Scientifique
Paris France

Summary

The expanding number of computers used in tertiary activities has raised working conditions problems. Usually, these questions have been approached from the view point of the qualities of the screen and environmental conditions. The different teams of the work physiology and ergonomics laboratory of the CNAM have mainly considered the cognitive activity, using the concepts of psycholinguistics and information processing in relation with some behavioral and physiological measurements such as those of eye movements and evoked potentials.

If some aspects of the work at computer terminals have been studied in laboratory, most of the researches have been performed in real situations : different journals printing shops, an international news agency, the french census analysis center, a new telecommunication terminal, the control room of an oil refinery, a robotized system in automobile industry.

All these studies have shown a very wide range of cognitive loads explaining why some situations are rather easily accepted by the workers and why others need such an hyperexcitation of the brain that some neurotic phenomena can be observed and some effects on consecutive sleep demonstrated.

A very precise relation can be established between the density of the text read, measured by linguistic techniques and the frequency of gaze and between the complexity of the codification and the duration of gaze. With the same type of techniques it is possible to show why the redaction of news agency dispatches are different when V.D.T. are used from the former redaction with paper and pencil.

More "intelligent" V.D.T. may help to come back to a better redaction quality taking in account the different macrostructures of the original papers from which the dispatch is built.

Semantics is another important question to be considered not only for the professional users but also for the public who will use more and more complex computer systems. How far the semantic field prepared inside the memory of the computer is analogous to the semantic fields of the different users and how the very special retrieval mechanism of human memory can be simulated in the future computers ?

Cognitive load and psycholinguistics

The problem of high cognitive load in modern production is not a new one. When studying semiskilled workers in electronic industry, LAVILLE (1968) has shown that nape muscle integrated EMG is greater and the eye-task distance smaller when the complexity of the task increases. In many circumstances, the workers using VDU full-time, are again semi-skilled mass production workers sometimes they are highly qualified like journalists. But, what they have in common is the intensive use of symbols : words and codes. This new type of cognitive activity has to be considered by ergonomists as a new field both for diagnosis and evaluation of high mental load situations and for the elaboration of solutions. It may be called : software ergonomics. The recent progress of psycholinguistics theory and of human information processing are for great help in this new area of ergonomics in relation with some behavioral and physiological measurements such as those of eye movements and evoked potentials.

If some aspects of the work at computer terminals have been studied in laboratory, most of the researches have been or are performed in real situations.

Newspapers printing industry ...

In the 4 printing firms where VDT workers have been observed there is a linear relation between the frequency of gaze on the screen and the information density of the text to be typed PAVARD B., GUERIN F., DURAFFOURG J(1980).

In this paper, the term "gaze" is used in preference to "eye fixation" when eye-movements behaviour was recorded by direct observation. Gaze duration is the time spent looking in one direction but sometimes with more than one eye fixation.

The text density is measured through the evaluation of syntactic segments of the text (FODOR J., BEVER T., 1965). In the same study, it was observed that the mean gaze duration on the screen is proportional to the number of codes included in the text. But this relation clearly established on persons working since 6 months in

2.

printing industry has not been seen among persons working there since 4 or 9 years.

... and laboratory experiments

In an experimental research connected with this last field research (GUERIN F., PAVARD B., DURAFFOURG J. 1979) have shown that proof-reading tasks on V.D.T. are more difficult when normal texts are frequently interrupted by codification items. This interaction is stronger for lexical faults than for semantic faults. For syntactic faults the relation is dubious. This experiment shown that professional operators have difficulties to perform simultaneously different cognitive activities as understanding a text, correcting syntactic and semantic mistakes. Considering the task, the reader uses different strategies related both to his/her objective and to the various levels of the sentence structure (PAVARD B., 1979) For example, sentence processing is quite different in a vocalized language like french and a language like arab that can be written without vowels. This study has been very helpful in understanding some consequences of the fragmentation of tasks due to computerization of newspapers printing industry.

Journalists cognitive behaviour ...

At a rather different level of cognitive activity, the journalists of news agencies have problems with the introduction of V.D.T. when writing dispatches. The analysis of text treatment procedures when journalists are typing on a classical machine or on VDT shows an interaction between the software characteristics and psycho-

semantic fields of the diverse citizens and of their occupational environments. But the operator has also to put this occupation in one of the categories of the computer's memory, categories that have been prepared by highly competent sociologists and administrators who have their own sophisticated semantic field. The way, the operator are in fact using the computer system to connect these two types of semantic fields is highly unexpected and it suggests alterations of the soft part of the system. Different experiments in real situations have tested parts of a new software before the whole has been built (PINSKY L., 1983). This research was only possible due to a narrow cooperation with operators who have accepted to vocalize their cognitive strategies in the different situations.

Final remarks

From an ergonomic viewpoint, the consequences of these researches is that the soft part of the computer system has to be precisely designed in relation with the psycholinguistic task to perform.

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linguistics procedures. Sentences are processed iteratively by chunks when journalists are working on V.D.T. and in a more global way when using a classical typing machine (DURAFFOURG J., GUERIN F., PAVARD B., 1982)

... and sleep

In the same study a relation was established between the characteristics of sleep and the type and intensity of mental activities in the work period preceding sleep onset.

For example, the mean delay of sleep onset after work stop is increased by one hour, if the cognitive load of the proceeding work period is doubled. The results may be interpreted in terms of compatibility with circadian rhythms (PAVARD B., VLADIS A., 1982).

Semantic fields

Semantics questions were raised by the study of the computer system of the french census analysis center. When the operator reads, for example the occupations as they are written by the citizens on the forms, the employee is related to the different and rather unknown

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ERGONOMICS IN DEVELOPING COUNTRIES

Alain WISNER^{*}, Simon DONGMO^{**}, Leda LEAL FERREIRA^{***}, Clarissa RUBIO^{****}, Nouredine SAHBI^{****}
Conservatoire National des Arts et Métiers^{*}, Manufacture Nationale des Tabacs^{**}, Fundacentro^{***},
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Paris France^{*}, Yaoundé Cameroun^{**}, Sao Paulo Brasil^{***}, Quezon City Philippines^{****}, Gafsa
Tunisie^{*****}.

Summary

Transfer of technology is now a powerful tool of industrialization of many countries who have not yet a full development of their economies. The success of this transfer is very unequal from one receiving country to another and from one plant to another. Ergonomic work analysis may explain lot of the deceptions and suggest solutions. In many cases the lack of success is rooted in the underestimation of the informal contribution of the workers of the exporting country to the satisfactory behaviour of the system. A better analysis of the geographical, biological and cultural differences between exporting and receiving countries induces different choices of technology and produces many recommendations about the conditions of a successful transfer. This body of knowledge strongly related to ergonomics could be called anthropotechnology.

A large movement --

Ergonomics in developing countries is now a vast area of research and action which is growing quickly in relation with Nord-South trade and soon with the South-South. Among the Societies taking part in IEA, there is now the Mexican Society, there will be soon probably, an Asean, a Bresilian, an Indian, a Maghrebin Society. Since 1976, a big effort has been realised by ILO to promote better working conditions in industrially developing countries through PIACT (Programme International pour l'Amélioration des Conditions de Travail - International program for better working conditions). An important step will be taken in Mexico in 1983 or 1984 with an international meeting on ergonomics in developing countries.

-- mainly in semi-industrialized countries --

But if one carefully looks at the countries that are building an ergonomic activity connected with their economic development, it can easily be observed that they are all members of the intermediate category recently isolated by the general director of World Bank as semi industrialized. They all have a considerable industry and a strong intellectual potential in universities and research centers. Most are themselves exporters of technology and taking part in the more and more active South-South trade.

-- and inside countries

It does not mean that other countries who are not yet in this semi privileged situation do not need ergonomics and that some important initiatives are not sometimes observed there. Neither does it mean that all parts of the semi industrialized countries have the same relation with economic development and ergonomics. Many of the industrially developing countries moving toward ergonomics are subcontinents (Brazil, India, Mexico, and are extremely diverse from one part to another. It seems that the transfer of technology inside one country is a very new and important subject in view of decentralization.

A main theme : anthropometry --

Among the classical themes of ergonomics, anthropometry has been the first studied but the knowledge is not yet sufficient. A. MANUABA, R.N. SEN, B. THU have shown the rather

little height of South Asia workers but N. SAHBI has not found any significant difference between miners in South Tunisia and in France. Large studies are done in Brasil (L.L. FERREIRA).

in relation with migrations

A very important question even for anthropometry is the knowledge of the population that will in fact use the material. In Europe, for example most of the miners and automobile workers are coming from abroad (mainly North Africa and Western Asia). In Middle East, many industrial workers are coming also from Asia and Africa but professionals and middle managers are frequently coming from the Philippines or Tunisia. Many problems cannot be solved without attention to these huge population movements (C. RUBIO et al.).

Physical capacity and work and life situations

Another important field of ergonomics in developing countries is physical fitness. Muscular strength has complex relations with body height, nutritional status, parasitism and heat. Very interesting studies have been produced again by A. MANUABA, R.N. SEN and B.THU in this area. Some small workers are quite strong if they receive enough food. (R.N.SEN). Many workers dont eat enough to produce as much as they are expected to do because they share food with an enlarged family. Many tropical workers have to use their forces in two or three activities (agriculture, artesanal production, tourism, like in BALI- A. MANUABA). A vegetarian diet, frequent pregnancies among women, and parasitism (ankylostemiasis, bilharziosis) may provoke such a low level of iron, and thereby of hemoglobin that there is a linear relation between the level of hemoglobin and production (tea gathering in SRI LANKA, sugar cane cutting in GUATEMALA). Many remarquable studies have been done relating heat and health or even mortality among miners (CH. WYNDHAM), relating heat and nutritional status among hotel workers (MANUABA). Coming back to industry, R.N. SEN has recently produced a very comprehensive report on ergonomic principles in the design of factories in hot climates.

Human ressources and anthropotechnology

It is clear from these examples that technology cannot be easily transfered with success without careful studies of the population of workers of the importing country, that the results of researches on human ressources are an important part of ergonomics knowledge. It is clear again that the study of climatic, social and cultural conditions is equally necessary for a sucessful transfer. These different aspects of knowledge and the methodology of implementation in conception and/or transfer of technology could be called antropotechnology.

Ergonomics in relation with national technology

If usually these considerations are used for technology elaborated in foreign countries, they are also necessary in cases where tentatives are done in industrially developing countries themselves by research center engineers. The International Rice Research Institute (IRRT) in LOS BANOS (Philippines) and the Central Rice Research Institute (CPRI) in Cuttack (India) have each produced a rice planting machine. These two machines allow a man to plant ten times as many rice shoots as he could by hand; however, this requires 2.5. times as much physical effort, wich is unacceptable as P. NAG has shown.

Even toxicology has to be considered

In relation with these physiological considerations, one has also to think to the very severe toxicological problems that arise many times in relation with the specific conditions of work in industrially developing countries (for exemple the pesticides used in brasilian sugar cane plantations M.R. CHUAIRA DA SILVA, U. MALUF). Avery good book on this subject has been published recently in SINGAPORE.

Work analysis

In many cases, the difficulties are even more hidden The "soft" part of the technology : methods manuals, training are transfered not only without understanding the ways of work and life of receiving countries but even more without realizing how things are really working in the exporting country. There is a difference between real work and the work as it prescribed by the engineers and organizers. What workers really do, due to their intelligence and experience

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Recommandations

There are many industrially developing countries where excellent ergonomic teams exist but too frequently these teams are living with difficulty. They are limited by poor facilities, limited library and - as it can be observed at IEA congresses - little travel allocations. One of the reasons of these limitations is of course the volume of the Gross National Product of these countries but also the fact that many governments have not yet realized that ergonomics and anthropotechnology are not only necessary for humanitarian reasons but for the success of transfer of technology. Too many imported machines or factories have a low productivity for reasons that ergonomics can detect and to which reasonable solutions can be found. One may hope that the impact of the international action can help to stress this point. It is the main reason for the MEXICO meeting organized by IEA, ILO and WHO. Industrially developed countries are also able to contribute and they do in receiving scholars from industrially developing countries. There is a great danger of brain drain if the researches are not connected with the real problems of the own country of the scholars but with the questions connected with research programs of the receiving country. This orientation is not at all easy in relation with the rules of students international exchanges. But as far the real finality of the training of students is considered, the results of these exchanges are beneficial as the coauthors of this text can testify. The past 10 years, 40 scholars coming from more than 15 industrially developing countries have stayed 1 to 3 years at the CNAM ergonomics laboratory in PARIS. Nearly all of these have come back to Africa, America or Asia and they contribute to ergonomics in their own countries.

ERGONOMICS IN DEVELOPING COUNTRIES

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MINISTÈRE DES UNIVERSITÉS
CONSERVATOIRE NATIONAL DES ARTS ET MÉTIERS

Département des Sciences de l'Homme au Travail
PHYSIOLOGIE DU TRAVAIL — ERGONOMIE

Paris, le 21st June 1982

Doctor R.B. Sen
Department of physiology
University Colleges of Science
92 Acharyya Prafullachandra Road
CALCUTTA 700 009 (Indes)

Dear friend,

I have received a very late proposal from the Tokyo I.E.A. congress organizers to take part to the symposium on "Past, present and future ergonomics" in speaking about "Ergonomics in developing countries".

Considering the very short delay, I thought that the question of ergonomics in industrially countries would not have been treated if I had refused and that it would be a mistake considering the Mexico meeting. You may perhaps know that I.E.A., I.L.O. and W.H.O. are organizing in Mexico, at the end of 83 or the beginning of 84, a meeting devoted to ergonomics in developing countries, meeting for which I am working since 4 years.

Anyway, for this short text, I was in a very conflictual situation : let people consider the importance of ergonomics existing now in industrially developing countries and specially of your works and, simultaneously, let the attenders of the Tokyo congress understand that I was not speaking as a french man but as member of an international team based in the CNAM laboratory. It's why, I have choosen 4 ergonomists who have worked and/or are working at the lab as co-authors. All four are good scientists and are members of industrially developing countries from different points of the world.

I hope that you shall attend the Tokyo meeting to have the pleasure to see you and to benefit of your remarks about this small text and also in a book that I have build from diverse papers written or translated in english and that you shall soon receive.

Truly yours,

A. Wisner



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8TH CONGRESS OF THE INTERNATIONAL ERGONOMICS ASSOCIATION

IEA 82

hosted by the JAPAN ERGONOMICS RESEARCH SOCIETY

23-27 August, 1982

Nihon Toshi Center, Hirakawa-cho, Chiyoda-ku, Tokyo, Japan.

Congress Chairman: Masamitsu Oshima

Advisory Board: Harry L. Davis, Etienne P. Grandjean, Brian Shackel,



INSTRUCTIONS FOR AUTHOR

1. Use only English Language.
2. Must be less than 2 pages of specified sheet of paper, including figures, tables and photos.
3. Type in single space with 12 pitch per inch, using black ribbon. Electric typewriter is preferable to off-set printing.
(Do not use carbon copy.)
4. Title in CAPITAL LETTERS centered across the two columns.
5. Author(s) name(s) (FAMILY NAME in CAPITAL) without degrees nor titles, after leaving one space from TITLE.
6. Institution(s) where research was done on the next line.
7. Town, state and country on the next line.
8. Add abstract within 10 spaces, after leaving 3 spaces from the space for town, state and country.
9. Start text from the left column after leaving 2 spaces from abstract.
10. Paragraph indention is to be 3 spaces.
11. Don't fold your text more than once when send it.
12. Text must reach the Secretariat not later than June 20, 1982.
If not, only abstract will be printed in the Proceedings.
13. Put your name and number in a rear side of tables figures and photos.

DETERMINATION OF COUNTING TIME IN VISUAL INSPECTION	
Kageyu NORO*, Takeshi KURABAYASHI**	1 space
*University of Occupational and Environmental Health,**Japan Institute of Synthetic Technology, *Kitakyushu, Japan,**Chiba, Japan,	
	3 space
<p>One of the most overlooked opportunities for improving optimum inspection time. A series of experiments of visual counting inspection was conducted. The experiments were designed to clarify the structure of time required to count dots appeared on the screen. During the experiments eye movements of the subjects were recorded by electro-ophthalmography. It was found that the patterns of the records (E.O.G.) were divided into three sections. The sections well represent the feature of the visual process of counting dots. Model which represents counting process is proposed. Using the model, time to count dots are estimated from the results of the experiments. Predicting steps for counting time is Proposed.</p>	
<p style="text-align: center;">↑ 2 space</p> <p>Introduction: Inspection conducted in the production field may be divided into counting inspection. With the counting inspection and</p>	<p>as acceptable or rejectable in accordance with the number of present pinholes. This is one example of counting inspection.</p>

lighting fittings specified in JIS C 8111, for example, pinholes present in a reflector are counted. The reflector is judged

wide and 72 cm high on the screen. The black dots projected on the screen are 1.5 cm in diameter. The positional

EXAMPLE OF PAGE 2

relationship between the screen and the subject is shown in Figure 1.

quired tends to increase, although it slightly differs depending on the experimental conditions involved. This relation-

councing remains virtually constant when the number of dots ranges from 1 to 4. When the dots exceed 4 in number, the time re-

would like to acknowledge the cooperations of Mrs. Sachiko and Mr. Takeo Iida, Industrial Product Research Institute.

ERGONOMICS IN DEVELOPING COUNTRIES

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16 Juin 1982

Madame Le Docteur Leda LEAL FERREIRA
FUNDACENTRO
Al. Barão de Limeira, 539
CEP 01202 SÃO PAULO Caixa postal 30291
(BRASIL)

Chère amie,

Vous trouverez, ci-joint, le texte d'une communication dont vous vous étonnerez probablement d'être co-auteur.

On m'a proposé au dernier moment de présenter au Congrès de l'Association Internationale à Tokyo, un exposé sur l'ergonomie dans les pays en développement au cours du Symposium intitulé : "Passé, présent et futur de l'Ergonomie".

Etant donné les délais, le problème des pays en développement industriel n'aurait pas été traité si j'avais refusé. Or cela m'a paru inacceptable, compte tenu du fait que l'Association Internationale d'Ergonomie, le B.I.T. et l'O.M.S. organisent à Mexico, à la fin de 83 ou au début de 84, un colloque consacré à l'Ergonomie des pays en développement industriel, colloque pour lequel je milite depuis 4 ans.

Toutefois, je ne voulais pas faire ce rapport seulement en tant que français, mais plutôt comme animateur d'un groupe international. J'ai donc pris quatre ergonomistes ayant longuement travaillé au laboratoire, appartenant à des pays situés dans diverses régions du monde, et ayant un niveau scientifique élevé.

Je voudrais que vous lisiez attentivement ce texte, et que vous me fassiez savoir si, d'une part, vous acceptez de maintenir votre nom, et, d'autre part, si vous souhaitez une modification du texte. Probablement, je ne pourrai pas modifier ce qui aura été imprimé, mais je m'engage, en cas de difficulté, à faire mention de votre refus ou des modifications que vous suggérerez au cours de mon exposé oral.

Si vous avez quelques détails supplémentaires sur vos travaux, et en particulier l'enquête anthropométrique que vous organisez, cela me serait fort utile. Je partirai pour l'Asie le 12 Août.

Soyez assurée de toute mon amitié pour vous-même et les vôtres.

A. Wisner

ERGONOMICS IN DEVELOPING COUNTRIES

Alain WISNER^{*}, Simon DONGMO^{**}, Leda LEAL FERREIRA^{***}, Clarissa RUBIO^{****}, Nouredine SAHBI^{****}
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Summary

Transfer of technology is now a powerful tool of industrialization of many countries who have not yet a full development of their economies. The success of this transfer is very unequal from one receiving country to another and from one plant to another. Ergonomic work analysis may explain lot of the deceptions and suggest solutions. In many cases the lack of success is rooted in the underestimation of the informal contribution of the workers of the exporting country to the satisfactory behaviour of the system. A better analysis of the geographical, biological and cultural differences between exporting and receiving countries induces different choices of technology and produces many recommendations about the conditions of a successful transfer. This body of knowledge strongly related to ergonomics could be called anthropotechnology.

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CONSERVATOIRE NATIONAL DES ARTS ET MÉTIERS

CNAM/SF/03

Paris, le 19 JUI 1982

Madame PAQUIE
Chef du Service Financier

à

Monsieur le Professeur Wisner

Objet : Ordre de mission

Référence : Décret N° 66.619 du 10 août 1966, modifié par le décret
N° 81.383 du 21 avril 1981.

20/9/82 Suite à votre demande d'ordre de mission du 12/8/82. an..

J'ai l'honneur de vous demander de bien vouloir me retourner dans les meilleurs délais l'état de frais ci-joint dûment complété et signé, à l'exception du cadre "montant" qui sera rempli par nos soins à l'aide des originaux de toutes les pièces justificatives : billets d'avion, de train, de car, reçu attestant des frais d'inscription que vous voudrez bien me faire parvenir.

Je vous demande, par ailleurs, de ne pas omettre d'inscrire votre nom au verso de ces justificatifs.

P/ Le Chef du Service Financier

G. KADOURI



MINISTÈRE DE L'ÉDUCATION NATIONALE

CONSERVATOIRE NATIONAL DES ARTS ET MÉTIERS

292, RUE SAINT-MARTIN - 75141 PARIS CEDEX 03

ORDRE DE MISSION

Comptabilisé le 29 juin 1982

Demande présentée pour Monsieur WISNER

Qualité :

indice :

Domicile : Département des Sciences de l'Homme au Travail -

Objet de la mission : Réunions traitant des problèmes de l'ergonomie des transports et d'éventuels transferts de technologie dans les pays d'Asie du Sud Est.

Lieu de destination : Japon, Corée, Philippines Singapour, Thaïlande

Moyen de transport : Avion

Date de départ : 13 Août 1982

Date de retour : 20 Septembre 1982

Imputation budgétaire : CNAM : Frais de séjour 17 journées + frais d'inscription et transport intérieur pour JAPON uniquement.

Imputation de la dépense

- exercice : 1982

- compte : 1990080000 clé 66

Visé au Contrôle Financier 5000080401 clé 64

le : 2 JUIL 1982
Le Contrôleur Financier

Fait à PARIS, le 8 JUIL 1982
Le Directeur du Conservatoire
National des Arts et Métiers,

P.J. MALATERRE

Numéro de Commande :

42655 + 42656

Montant de l'engagement :

10.000 } 199 000 00

6 6 6 6 } 500 000 0401

Clé : 66

63

ÉTAT DES FRAIS DE DÉPLACEMENT engagés par

M. Prénom : Grade : Indice :

Fonctions exactes et Etablissement :

Adresse complète :

C.C.P. ou bancaire :

Pour les missions dont il a été chargé :

L'intéressé déclare avoir }
 ne pas avoir } bénéficié d'une réduction de% au titre de

	A L L E R		R E T O U R		MOYEN DE TRANSPORT	MONTANT
	Date	Heure	Date	Heure		
DÉPART	TRAIN
					SUPPLÉMENT
					AVION
					CAR
ARRIVÉE	VOITURE PERSONNELLE CV.
					Kms :

CADRE RÉSERVÉ À L'ADMINISTRATION

FRAIS DE TRANSPORT :

FRAIS D'INSCRIPTION :

FRAIS DE SEJOUR Total indemnités de base

MÉTROPOLITE													}	
	0 h. à 5 h.													
11 h. à 14 h.														
18 h. à 21 h.														

ÉTRANGER	Nombre de jours	Indemnité journalière	Taux de chancellerie	}	
		

TOTAL

Je soussigné certifie l'exactitude des renseignements donnés ci-dessus.

Fait à
 le

Signature de l'intéressé,

Vérifié et reconnu exact.

Le Directeur du C.N.A.M.,

Arrêté le présent état à la somme de :

Bon à payer par l'Agent Comptable du C.N.A.M.

A Paris, le 19



MINISTÈRE DES UNIVERSITÉS

CONSERVATOIRE NATIONAL DES ARTS ET MÉTIERS

Département des Sciences de l'Homme au Travail
PHYSIOLOGIE DU TRAVAIL — ERGONOMIE

Paris, le 23 Juin 1982

Monsieur DONGMO Simon

Cher Dongmo,

Vous trouverez, ci-joint, le texte d'une communication dont vous vous étonnerez probablement d'être co-auteur.

On m'a proposé au dernier moment de présenter au Congrès de l'Association Internationale d'Ergonomie à Tokyo, un exposé sur l'ergonomie dans les pays en développement au cours du Symposium intitulé : "Passé, présent et futur de l'Ergonomie".

Etant donné les délais, le problème des pays en développement industriel n'aurait pas été traité si j'avais refusé. Or cela m'a paru inacceptable, compte tenu du fait que l'Association Internationale d'Ergonomie, le B.I.T. et l'O.M.S. organisent à Mexico, à la fin de 83 ou au début de 84, un colloque consacré à l'Ergonomie des pays en développement industriel, colloque pour lequel je milite depuis 4 ans.

Toutefois, je ne voulais pas faire ce rapport seulement en tant que français, mais plutôt comme animateur d'un groupe international. J'ai donc pris comme co-auteur quatre ergonomistes ayant longuement travaillé au laboratoire, appartenant à des pays situés dans diverses régions du monde, et ayant un niveau scientifique élevé.

Je voudrais que vous lisiez attentivement ce texte, et que vous me fassiez savoir si, d'une part, vous acceptez de maintenir votre nom, et, d'autre part, si vous souhaitez une modification du texte. Probablement, je ne pourrai pas modifier ce qui aura été imprimé, mais je m'engage, en cas de difficulté, à faire mention de votre refus ou des modifications que vous suggérerez au cours de mon exposé oral. Si vous avez quelques détails supplémentaires sur vos travaux, et en particulier l'analyse du travail que vous réalisez au Cameroun, cela me serait fort utile. Je partirai pour l'Asie le 12 Août.

Soyez assuré de toute mon amitié pour vous-même et les vôtres.

A. Wisner

ERGONOMICS IN DEVELOPING COUNTRIES

Alain WISNER^{*}, Simon DONGMO^{**}, Leda LEAL FERREIRA^{***}, Clarissa RUBIO^{****}, Nouredine SAHBI^{****}
Conservatoire National des Arts et Métiers^{*}, Manufacture Nationale des Tabacs^{**}, Fundacentro^{***},
University of the Philippines^{****}, Compagnie des mines de phosphates^{*****}
Paris France^{*}, Yaoundé Cameroun^{**}, Sao Paulo Brasil^{***}, Quezon City Philippines^{****}, Gafsa
Tunisie^{*****}.

Summary

Transfer of technology is now a powerful tool of industrialization of many countries who have not yet a full development of their economies. The success of this transfer is very unequal from one receiving country to another and from one plant to another. Ergonomic work analysis may explain lot of the deceptions and suggest solutions. In many cases the lack of success is rooted in the underestimation of the informal contribution of the workers of the exporting country to the satisfactory behaviour of the system. A better analysis of the geographical, biological and cultural differences between exporting and receiving countries induces different choices of technology and produces many recommendations about the conditions of a successful transfer. This body of knowledge strongly related to ergonomics could be called anthropotechnology.

A large movement ...

Ergonomics in developing countries is now a vast area of research and action which is growing quickly in relation with Nord-South trade and soon with the South-South. Among the Societies taking part in IEA, there is now the Mexican Society, there will be soon probably, an Asean, a Bresilian, an Indian, a Maghrebin Society. Since 1976, a big effort has been realised by ILO to promote better working conditions in industrially developing countries through PIACT (Programme International pour l'Amélioration des Conditions de Travail - International program for better working conditions). An important step will be taken in Mexico in 1983 or 1984 with an international meeting on ergonomics in developing countries.

-- mainly in semi-industrialized countries ...

But if one carefully looks at the countries that are building an ergonomic activity connected with their economic development, it can easily be observed that they are all members of the intermediate category recently isolated by the general director of World Bank as semi industrialized. They all have a considerable industry and a strong intellectual potential in universities and research centers. Most are themselves exporters of technology and taking part in the more and more active South-South trade.

-- and inside countries

It does not mean that other countries who are not yet in this semi privileged situation do not need ergonomics and that some important initiatives are not sometimes observed there. Neither does it mean that all parts of the semi industrialized countries have the same relation with economic development and ergonomics. Many of the industrially developing countries moving toward ergonomics are subcontinents (Brazil, India, Mexico, and are extremely diverse from one part to another. It seems that the transfer of technology inside one country is a very new and important subject in view of decentralization.

A main theme : anthropometry ...

Among the classical themes of ergonomics, anthropometry has been the first studied but the knowledge is not yet sufficient. A. MANUABA, R.N. SEN, B. THU have shown the rather

little height of South Asia workers but N. SAHBI has not found any significant difference between miners in South Tunisia and in France. Large studies are done in Brasil (L.L. FERREIRA).

... in relation with migrations

A very important question even for anthropometry is the knowledge of the population that will in fact use the material. In Europe, for example most of the miners and automobile workers are coming from abroad (mainly North Africa and Western Asia). In Middle East, many industrial workers are coming also from Asia and Africa but professionals and middle managers are frequently coming from the Philippines or Tunisia. Many problems cannot be solved without attention to these huge population movements (C. RUBIO et al.).

Physical capacity and work and life situations

Another important field of ergonomics in developing countries is physical fitness. Muscular strength has complex relations with body height, nutritional status, parasitism and heat. Very interesting studies have been produced again by A. MANUABA, R.N. SEN and B.THU in this area. Some small workers are quite strong if they receive enough food. (R.N.SEN). Many workers don't eat enough to produce as much as they are expected to do because they share food with an enlarged family. Many tropical workers have to use their forces in two or three activities (agriculture, artesanal production, tourism, like in BALI- A. MANUABA). A vegetarian diet, frequent pregnancies among women, and parasitism (ankylostomiasis, bilharziosis) may provoke such a low level of iron, and thereby of hemoglobin that there is a linear relation between the level of hemoglobin and production (tea gathering in SRI LANKA, sugar cane cutting in GUATEMALA). Many remarkable studies have been done relating heat and health or even mortality among miners (CH. WYNDHAM), relating heat and nutritional status among hotel workers (MANUABA). Coming back to industry, R.N. SEN has recently produced a very comprehensive report on ergonomic principles in the design of factories in hot climates.

Human resources and anthropotechnology

It is clear from these examples that technology cannot be easily transferred with success without careful studies of the population of workers of the importing country, that the results of researches on human resources are an important part of ergonomics knowledge. It is clear again that the study of climatic, social and cultural conditions is equally necessary for a successful transfer. These different aspects of knowledge and the methodology of implementation in conception and/or transfer of technology could be called antropotechnology.

Ergonomics in relation with national technology

If usually these considerations are used for technology elaborated in foreign countries, they are also necessary in cases where tentatives are done in industrially developing countries themselves by research center engineers. The International Rice Research Institute (IRRT) in LOS BANOS (Philippines) and the Central Rice Research Institute (CPRI) in Cuttack (India) have each produced a rice planting machine. These two machines allow a man to plant ten times as many rice shoots as he could by hand; however, this requires 2.5. times as much physical effort, which is unacceptable as P. NAG has shown.

Even toxicology has to be considered

In relation with these physiological considerations, one has also to think to the very severe toxicological problems that arise many times in relation with the specific conditions of work in industrially developing countries (for exemple the pesticides used in brasilian sugar cane plantations M.R. CHUAIRA DA SILVA, U. MALUF). A very good book on this subject has been published recently in SINGAPORE.

Work analysis

In many cases, the difficulties are even more hidden. The "soft" part of the technology : methods manuals, training are transferred not only without understanding the ways of work and life of receiving countries but even more without realizing how things are really working in the exporting country. There is a difference between real work and the work as it prescribed by the engineers and organizers. What workers really do, due to their intelligence and experience

is usually unknown and not transferred to the receiving country S. DONGMO in analysing the way tobacco factory workers are operating in France has seen that they are completely neglecting the automated signalisation that is in fact inadequate but that they are using very sophisticated pattern of observations transmitted from one worker to another. However what is transmitted to the receiving country is a very formal use of the automated signalisation. Sometimes there is a complex mixture of these cultural and psychological aspects with more material facts. In the phosphate mines in South Tunisia, the saline nature of the ore and the insufficient use of soluble oil produces the jamming of the hydraulic pillars in such a proportion that the maintenance unit is overloaded and the supporting system dangerous (N. SAHBI).

Recommandations

There are many industrially developing countries where excellent ergonomic teams exist but too frequently these teams are living with difficulty. They are limited by poor facilities, limited library and - as it can be observed at IEA congresses - little travel allocations. One of the reasons of these limitations is of course the volume of the Gross National Product of these countries but also the fact that many governments have not yet realized that ergonomics and anthropotechnology are not only necessary for humanitarian reasons but for the success of transfer of technology. Too many imported machines or factories have a low productivity for reasons that ergonomics can detect and to which reasonable solutions can be found. One may hope that the impact of the international action can help to stress this point. It is the main reason for the MEXICO meeting organized by IEA, ILO and WHO. Industrially developed countries are also able to contribute and they do in receiving scholars from industrially developing countries. There is a great danger of brain drain if the researches are not connected with the real problems of the own country of the scholars but with the questions connected with research programs of the receiving country. This orientation is not at all easy in relation with the rules of students international exchanges. But as far the real finality of the training of students is considered, the results of these exchanges are beneficial as the coauthors of this text can testify. The past 10 years, 40 scholars coming from more than 15 industrially developing countries have stayed 1 to 3 years at the CNAM ergonomics laboratory in PARIS. Nearly all of these have come back to Africa, America or Asia and they contribute to ergonomics in their own countries.

Table 1: Number of enterprise-cases studied for the project by industry, by size and by country

Industry		Food Products		Textile and Garments		Metal-working		Total
		Small	Medium	Small	Medium	Small	Medium	
Enterprise size								
Number of enterprises studied		8	9	6	14	10	9	56
Number of full-time employees	19 or less	6		3		4		13
	20 -- 49	2		3		6		11
	50 -- 99				3		1	4
	100--199		4		7		5	16
	200 or more		5		4		3	12
Bangladesh		1	1	1	1	1	1	6
India		2	2	1	3	3	2	13
Indonesia		1	1	1	1	1	1	6
Malaysia		1	1	1	2	1	1	7
Philippines		1	1		2	1	1	6
Singapore			1		2	1	1	5
Sri Lanka		1	1	1	2	1	1	7
Thailand		1	1	1	1	1	1	6

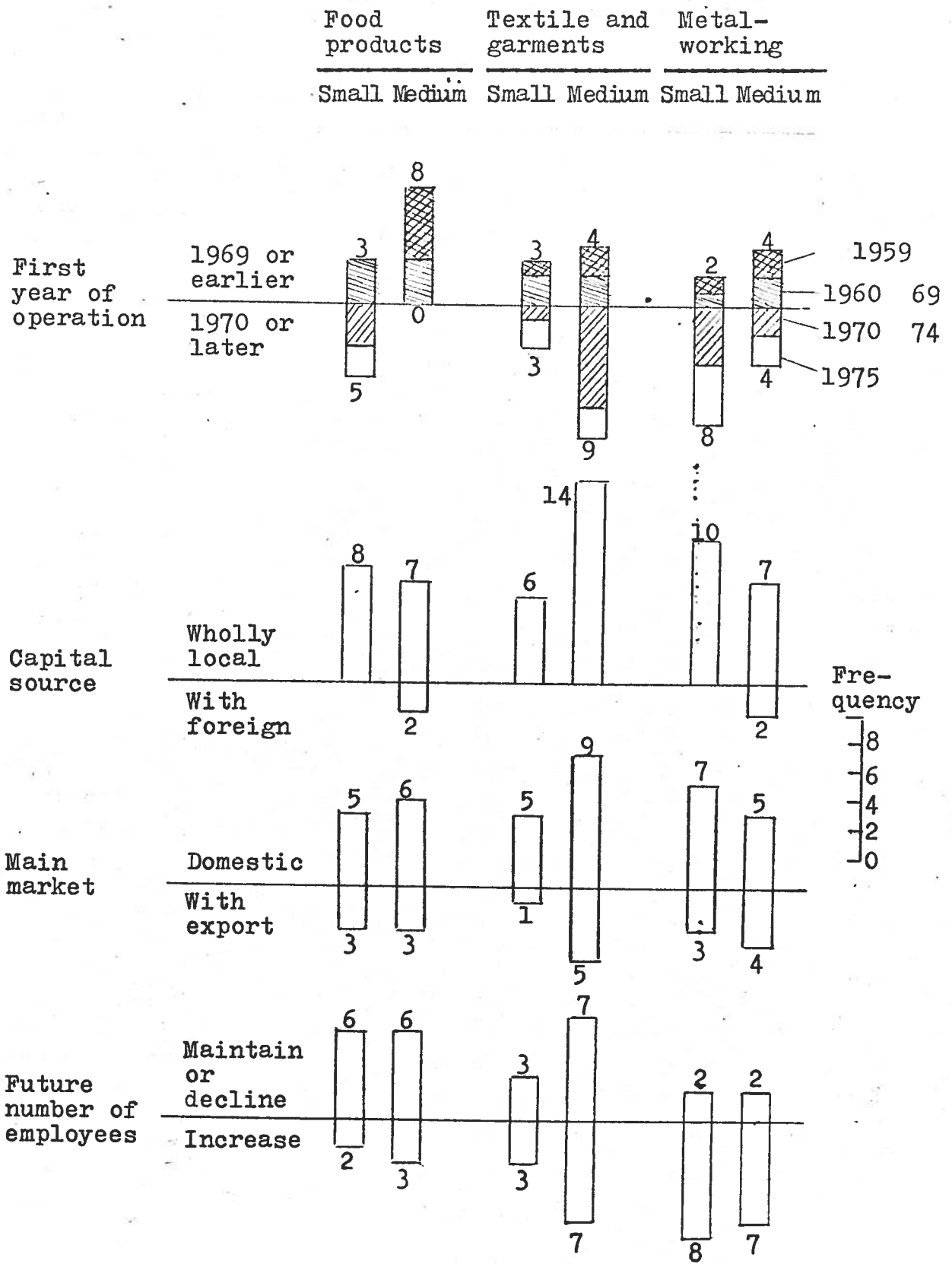


Fig. 1. The first year of operation, capital source, main market and future trend in the number of employees of the enterprises studied by industry and by size.

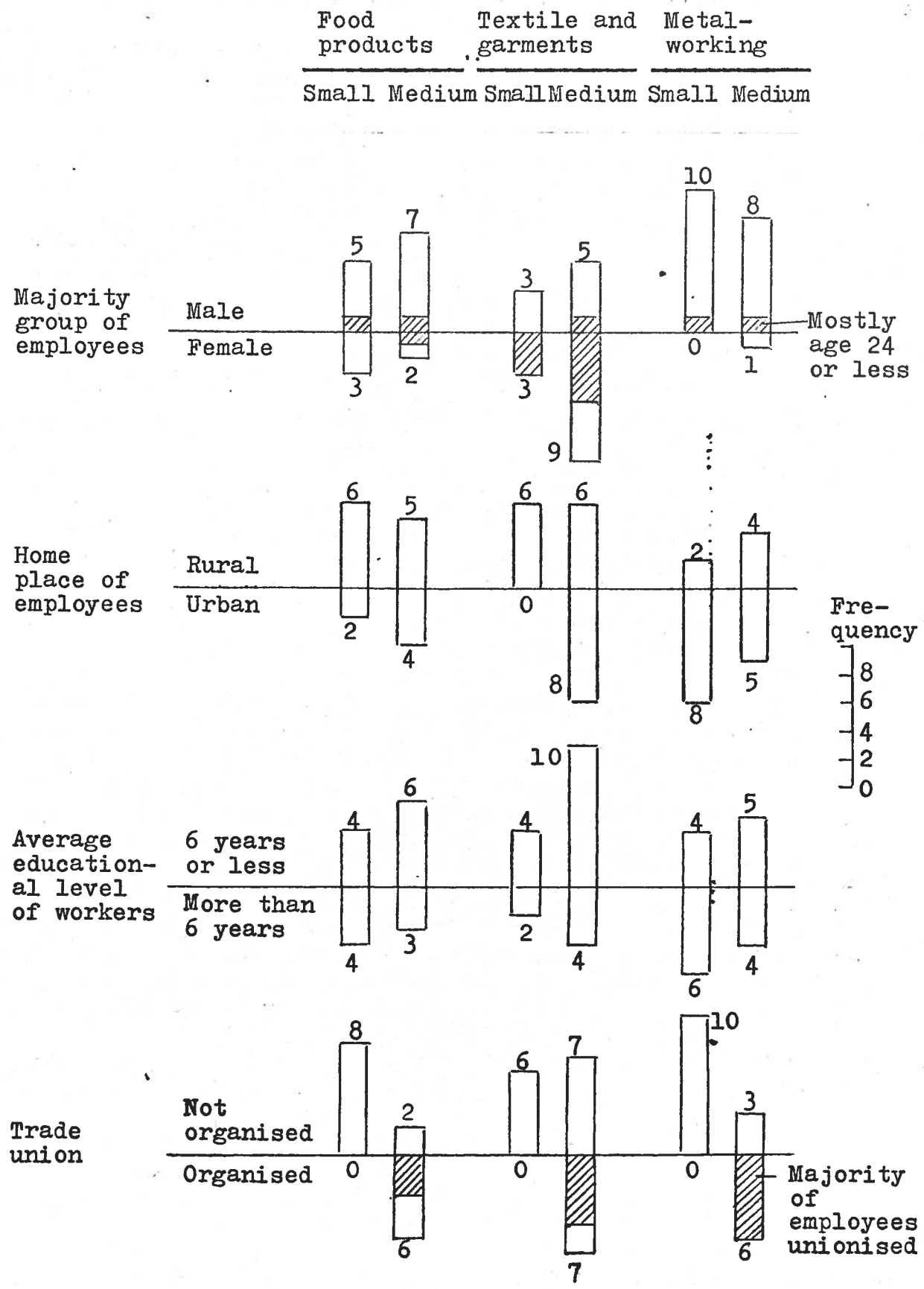


Fig. 2. Employees' sex and home town, production workers' average educational level and organisation of trade unions.

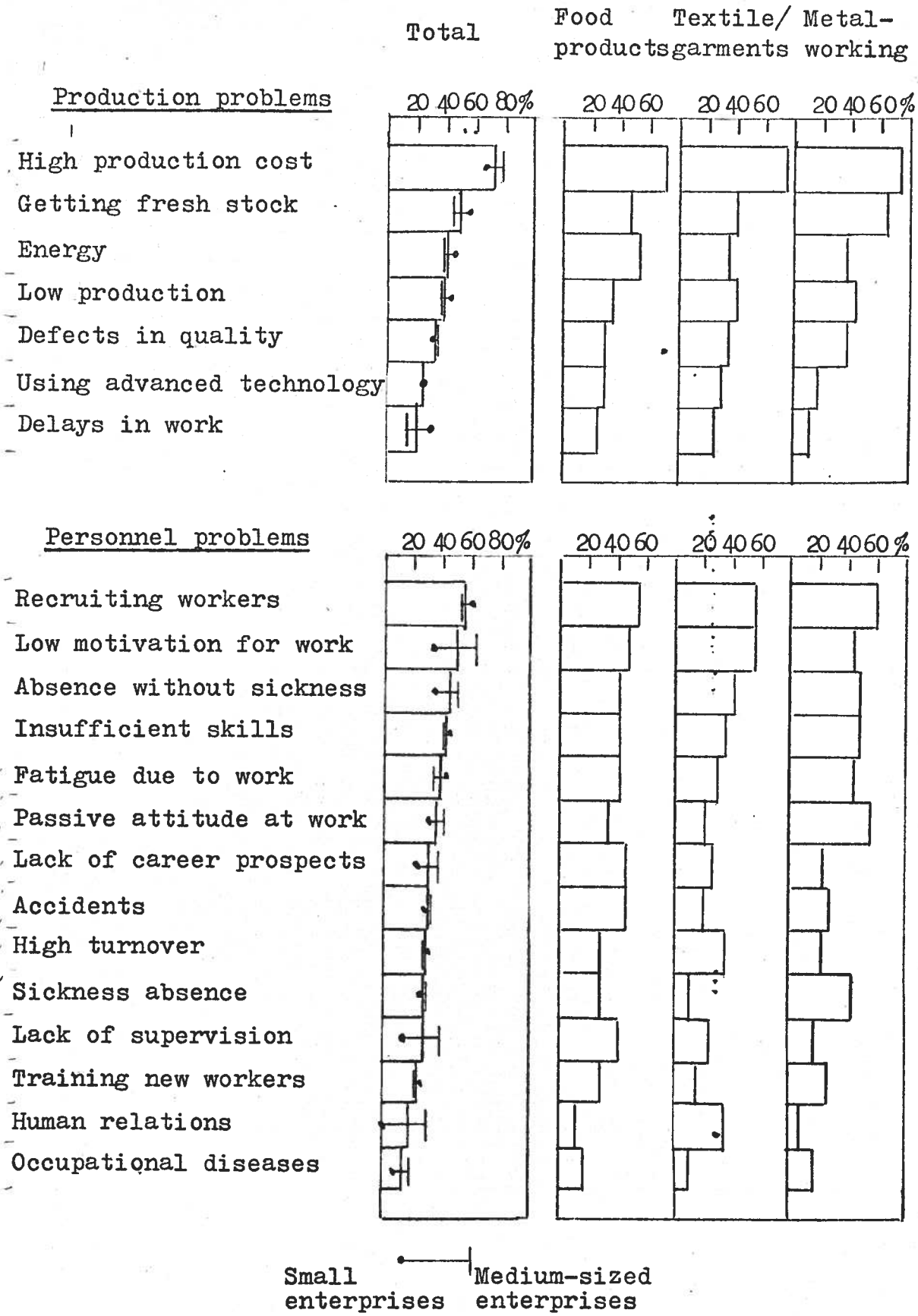


Fig. 4. Production and personnel problems as perceived by the management and production staff of the enterprises.
 **, difference between small and medium enterprises significant at the 0.01 level;
 *, significant at the 0.05 level;
 (*), significant at the 0.1 level.

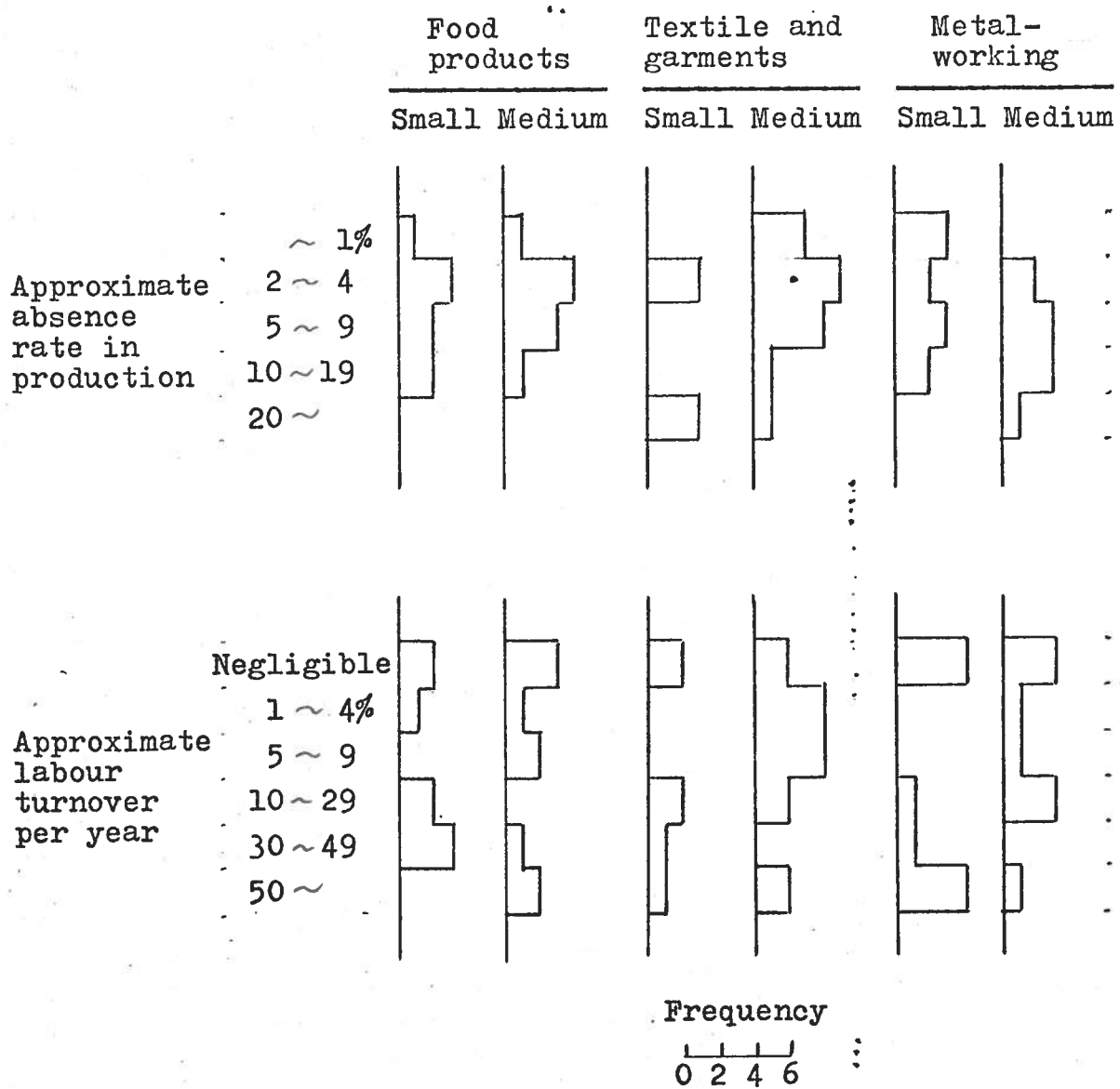


Fig. 5. Distribution of approximate absence rate in production and of approximate labour turnover per year.

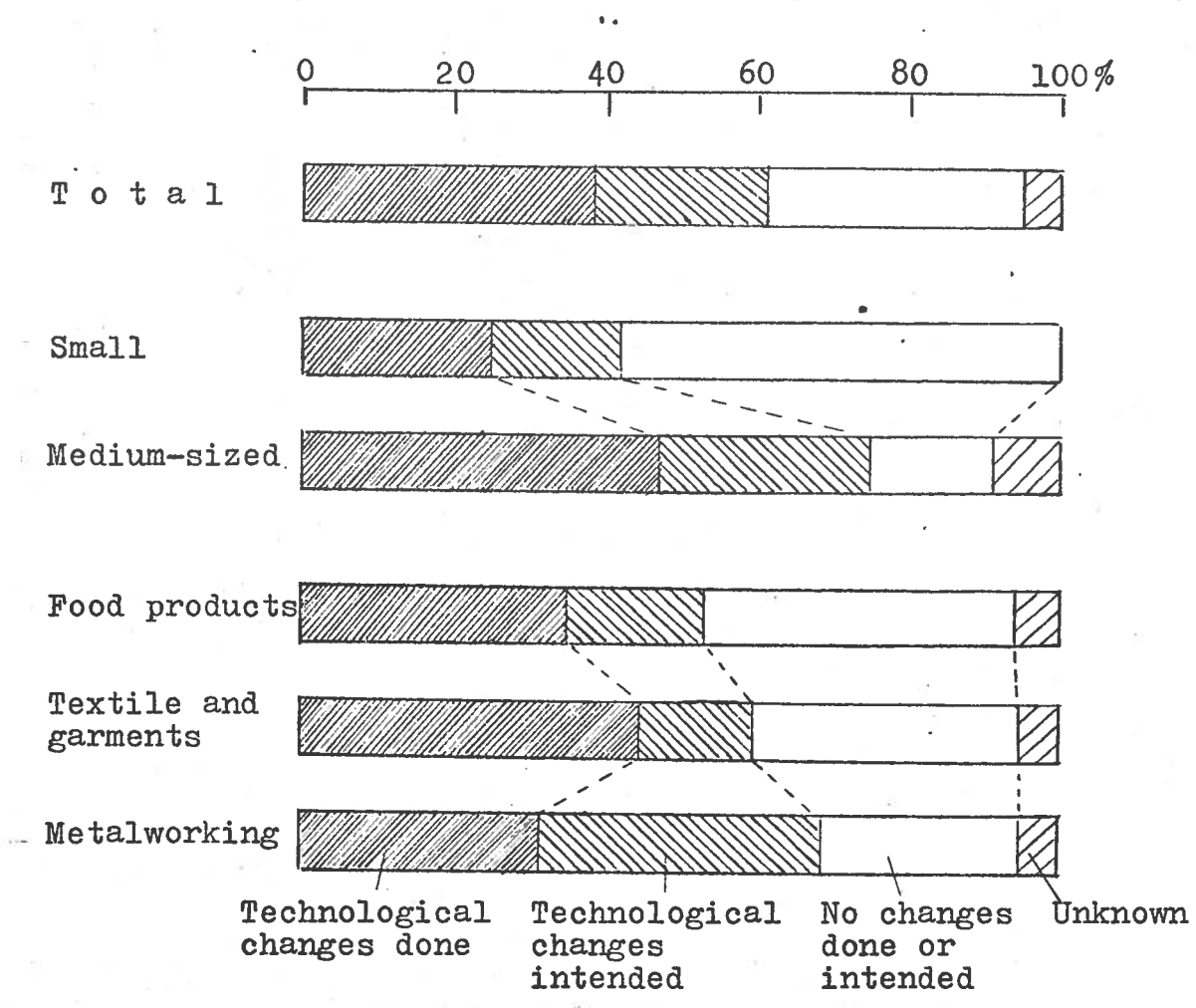


Fig. 7. Percentages of enterprises which implemented or intended technological changes to cope with their production and personnel problems.

Table 6: Makers of major machinery used in production processes studied of the 56 enterprises

Industry	Food Products		Textile and Garments		Metal-working		Total
	Small	Medium	Small	Medium	Small	Medium	
Enterprise size							
No. of enterprises	8	9	6	14	10	9	56
M only	3	1	1	2	8	4	19
ML	AH		C	C	ABBB	BD	10
Md + Mi	G				DE	G	4
Mi		E		G	FG		4
M ₁ + Mi						B	1
M + T	2	4	2	5	1	2	16
Mi+Ti	CE	C	GH	BEF		F	9
Mi+Td+Ti		G		D	C		3
M ₁ +Mi+T ₁ +Ti		B		B			2
M ₁ +Mi+Ti		B					1
Md+Td						C	1
T only	1	4	2	6	1	3	17
Ti	D	ADFH		ABDFG	H	AEH	14
Td			B				1
T ₁ + Ti			B				1
Td + Ti				H			1
No machinery	2		1	1			4
	BB		D	E			

M = specialised or universal machines;
T = semi-automatic or automatic machines;
M₁, T₁ = locally manufactured;
M_d, T_d = imported from developing countries;
M_i, T_i = imported from industrialised countries.

A = Bangladesh; B = India; C = Indonesia; D = Malaysia;
E = Philippines; F = Singapore; G = Sri Lanka; H = Thailand.

	Food products		Textile and garments		Metal-working	
	Small	Medium	Small	Medium	Small	Medium
Number of enterprises						
<u>Activities of workers</u>						
Transforming materials						
Operating machines						
Feeding machines						
Assembling						
Packaging						
Carrying						
Inspecting						
<u>Worker responsibility</u>						
Material supply						
Amount of products						
Quality of products						
Keeping pace with machines						
Maintenance of machines						
Housekeeping						
Planning of work						

Fig. 9. Activities of workers and their responsibilities in production processes studied. Number of enterprises falling in each category is shown.

(a) Workplace Ergonomics

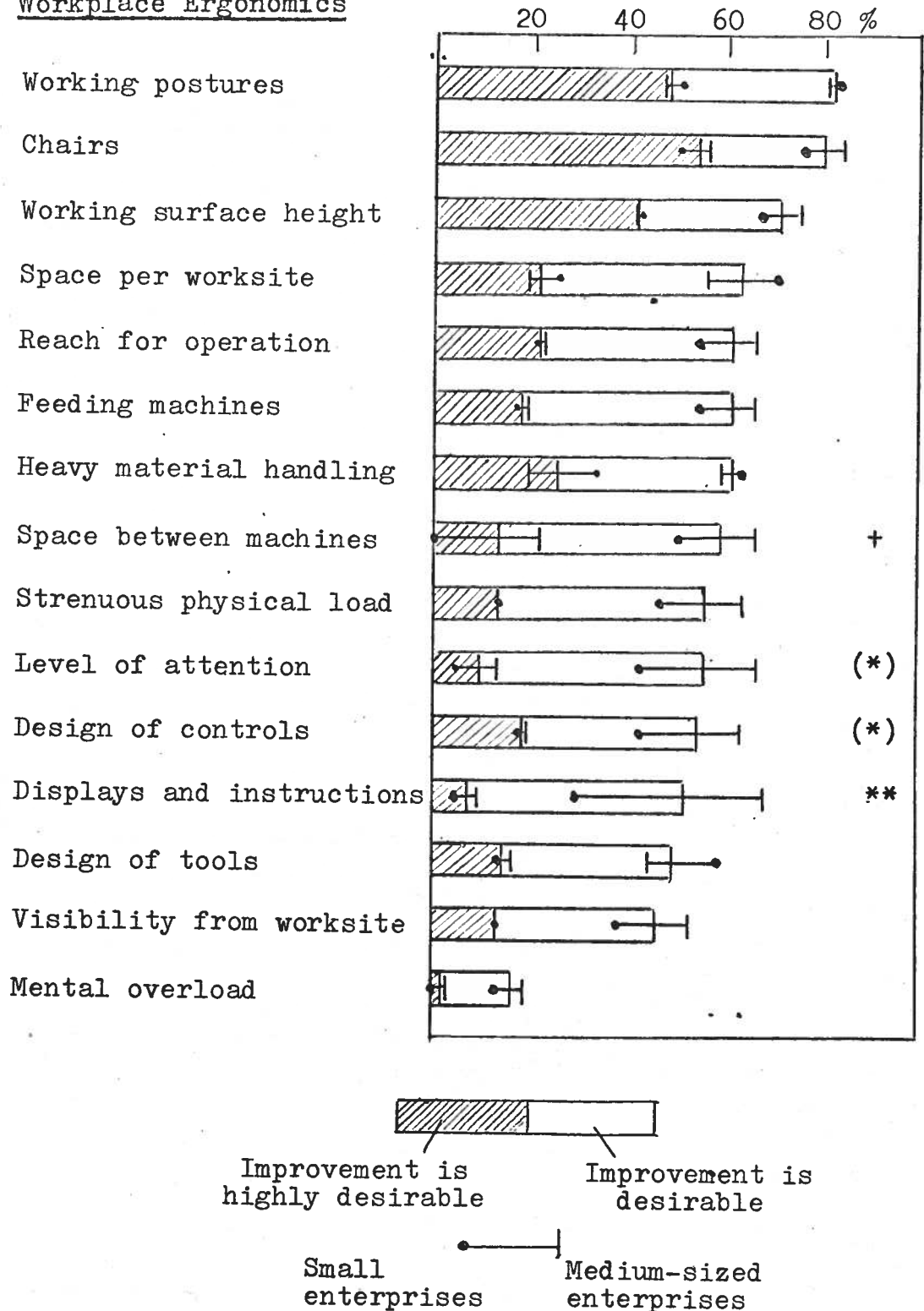


Fig. 11. Percentage of enterprises in which the improvement of the production processes studied was desirable or highly desirable.

** , difference between small and medium-sized enterprises significant at the 0.01 level;

* , significant at the 0.05 level;

(*) , significant at the 0.1 level.

+ , difference between small and medium-sized enterprises in percentages for high desirability significant at the 0.05 level;

(+). significant at the 0.1 level.

(b) Work Organisation and Working Time

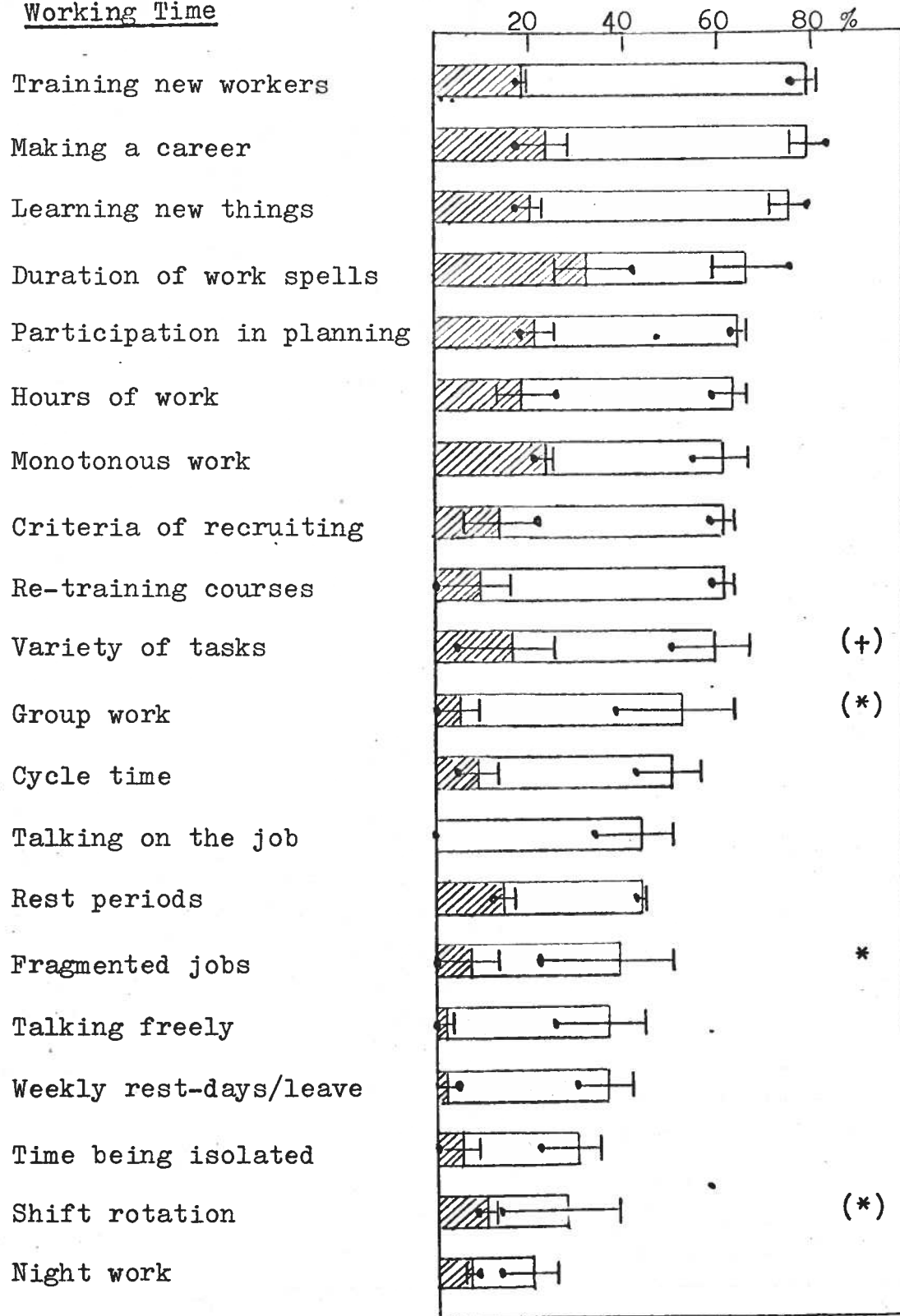
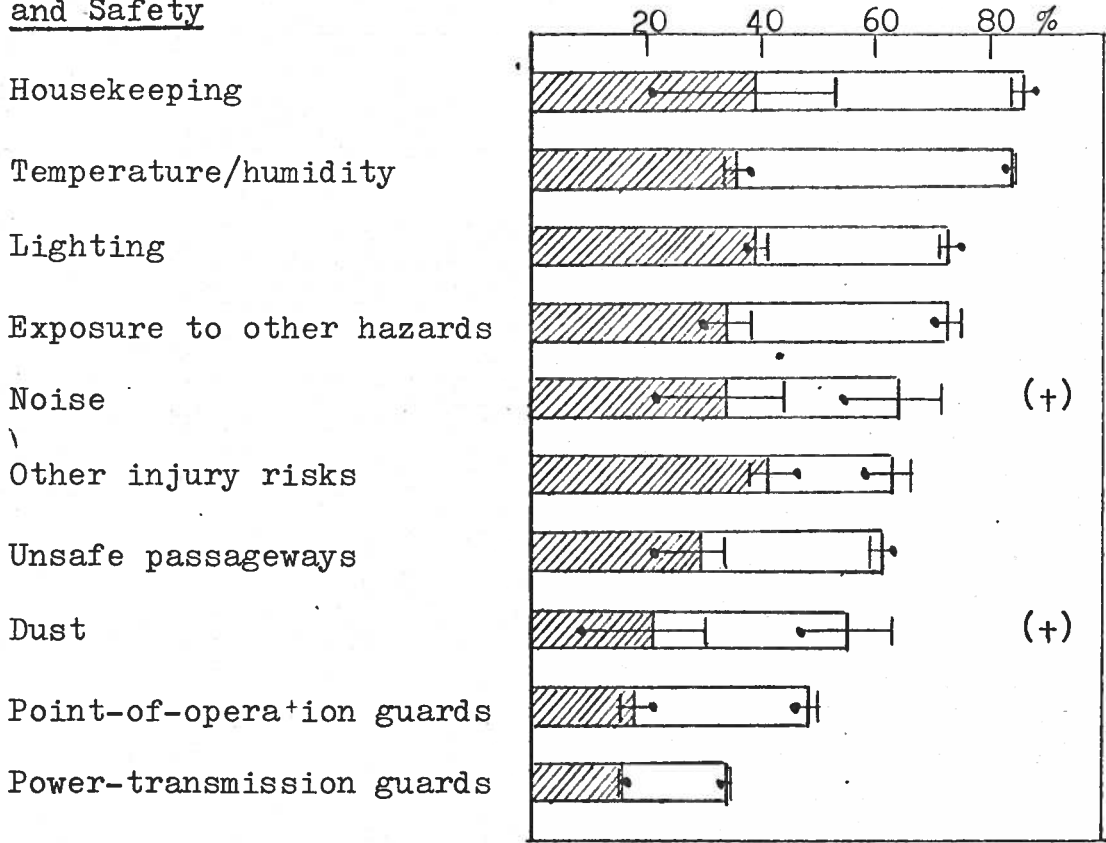


Fig. 11 (Continued).

(c) Workplace Environment and Safety



(d) Welfare and Social Services

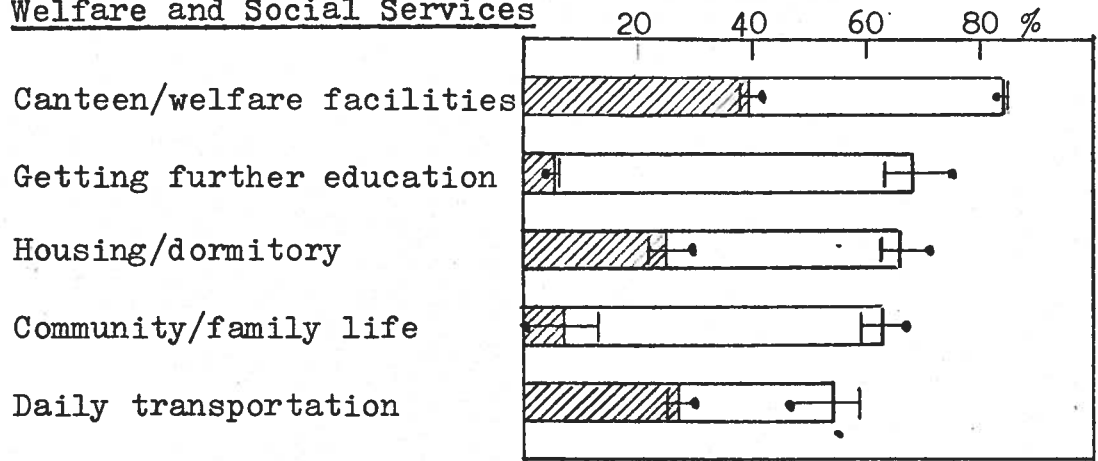
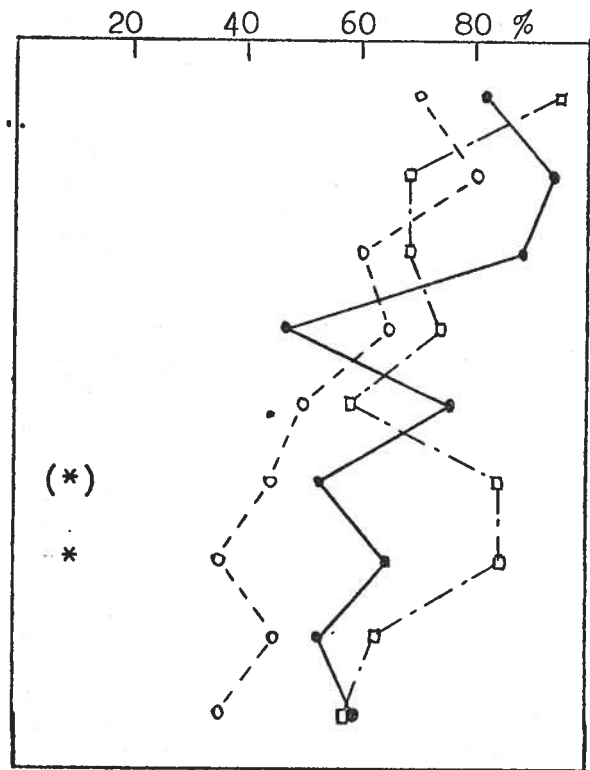


Fig. 11 (Continued).

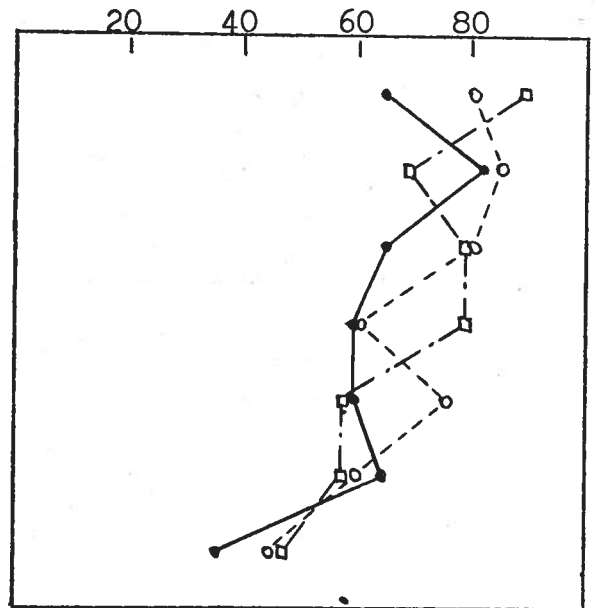
(a) Workplace Ergonomics

- Working postures
- Chairs
- Working surface height
- Space per worksite
- Reach for operation
- Feeding machines
- Heavy material handling
- Design of controls
- Design of tools



(b) Work Organisation and Working Time

- Training new workers
- Making a career
- Learning new things
- Duration of work spells
- Participation in planning
- Monotonous work
- Rest periods

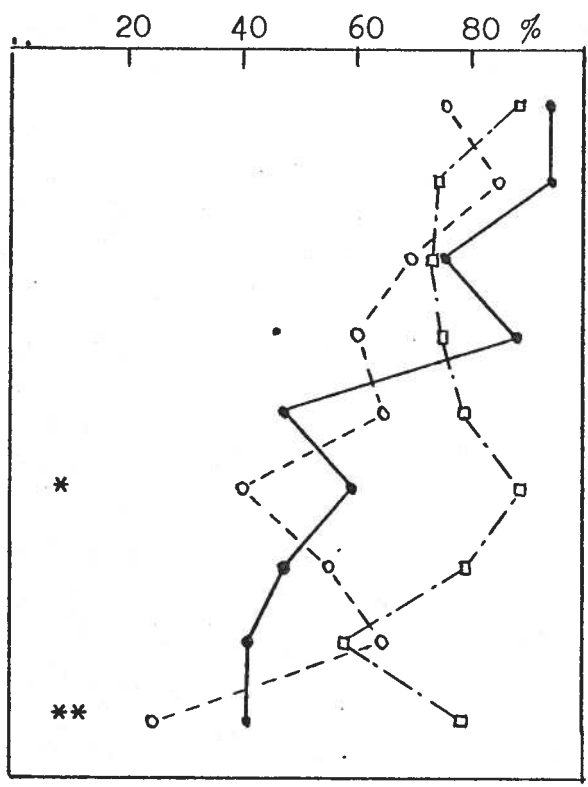


●—● Food products
 ○---○ Textile and garments
 □---□ Metalworking

Fig. 12. Percentage of enterprises by industry in which the improvement in the production processes was desirable.
 ** , difference between the three industries significant at the 0.01 level;
 * , significant at the 0.05 level;
 (*), significant at the 0.1 level.

(c) Workplace Environment and Safety

- Housekeeping
- Temperature/humidity
- Lighting
- Exposure to other hazards
- Noise
- Other injury risks
- Unsafe passageways
- Dust
- Point-of-operation guards



(d) Welfare and Social Services

- Canteen/welfare facilities
- Housing/dormitory
- Daily transportation

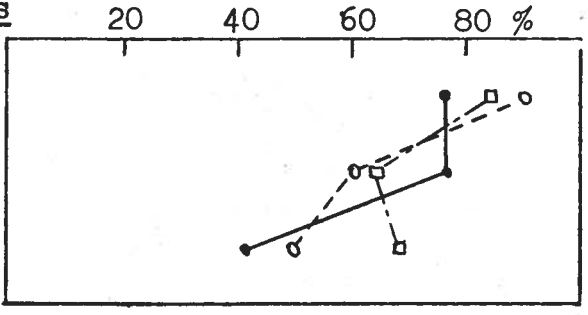


Fig. 12 (Continued).

(a) Workplace Ergonomics

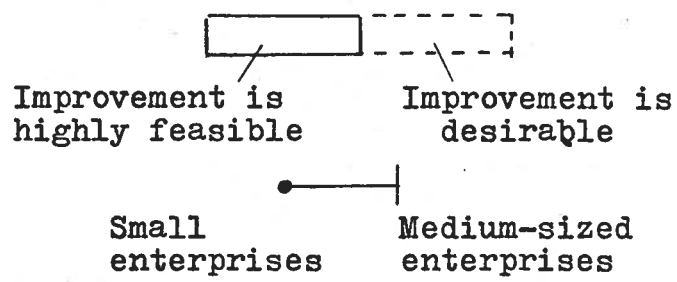
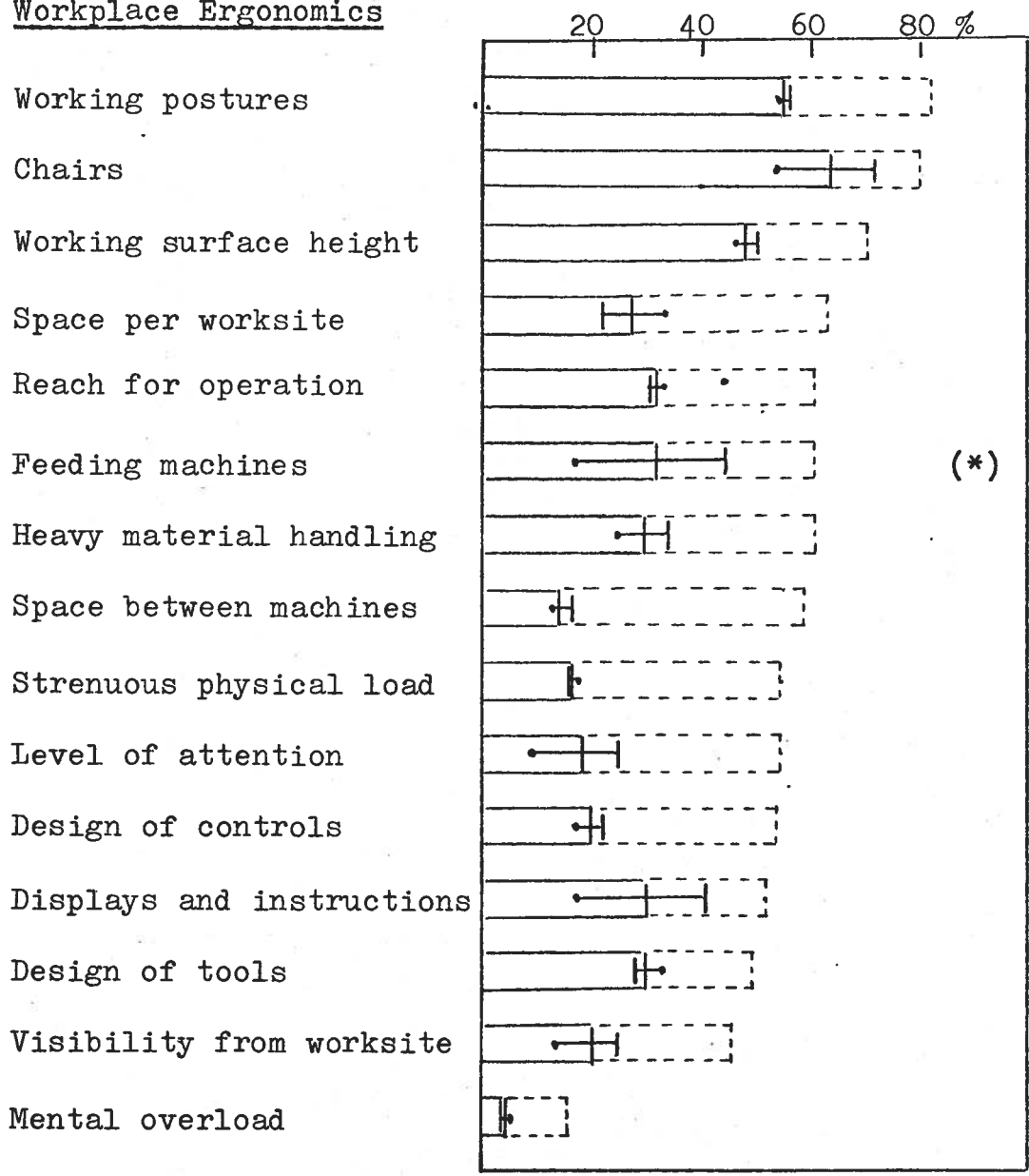


Fig. 13. Percentage of enterprises in which the improvement was considered to be highly feasible.

(*) , difference between small and medium-sized enterprises significant at the 0.1 level.

(b) Work Organisation and Working Time

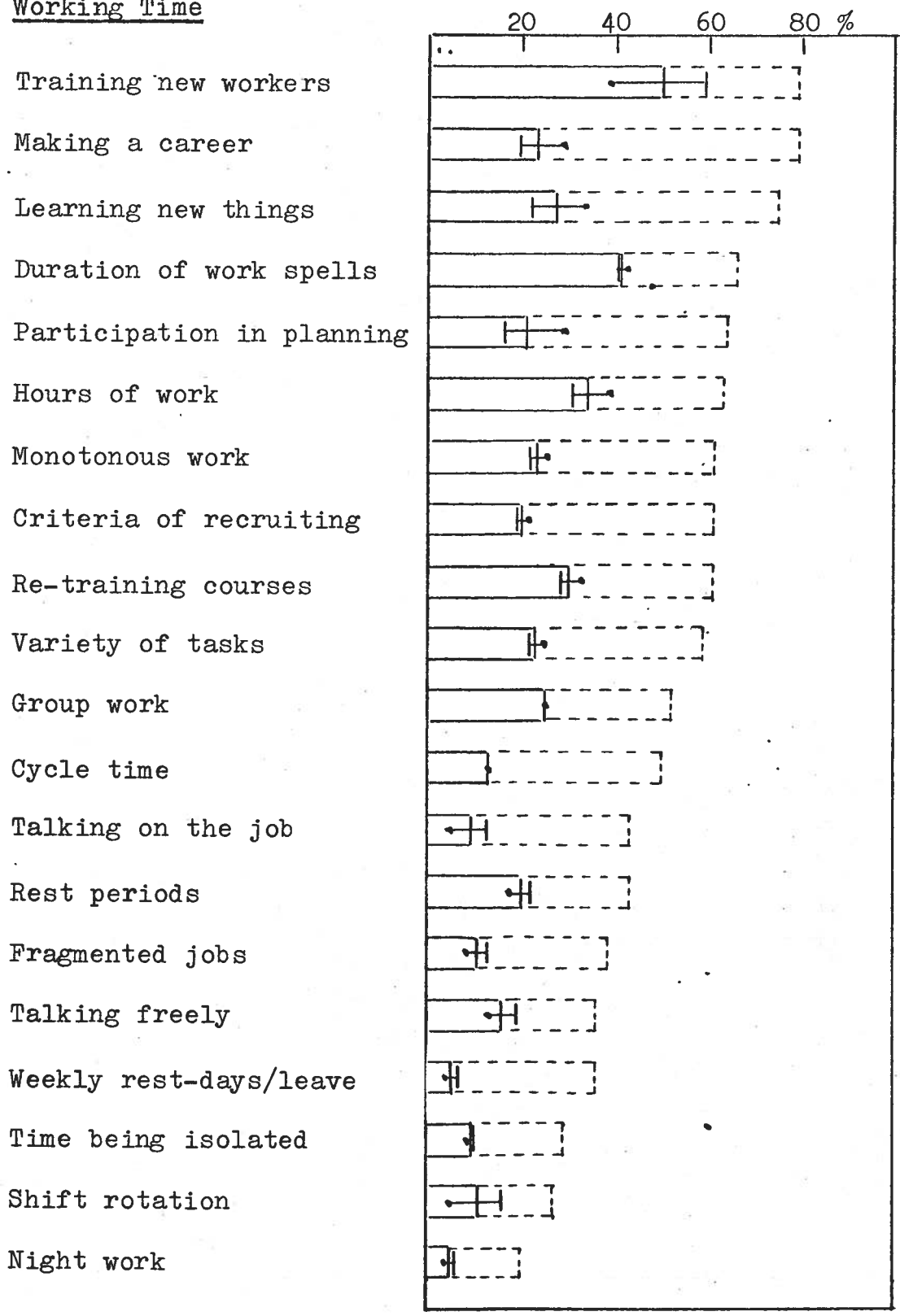
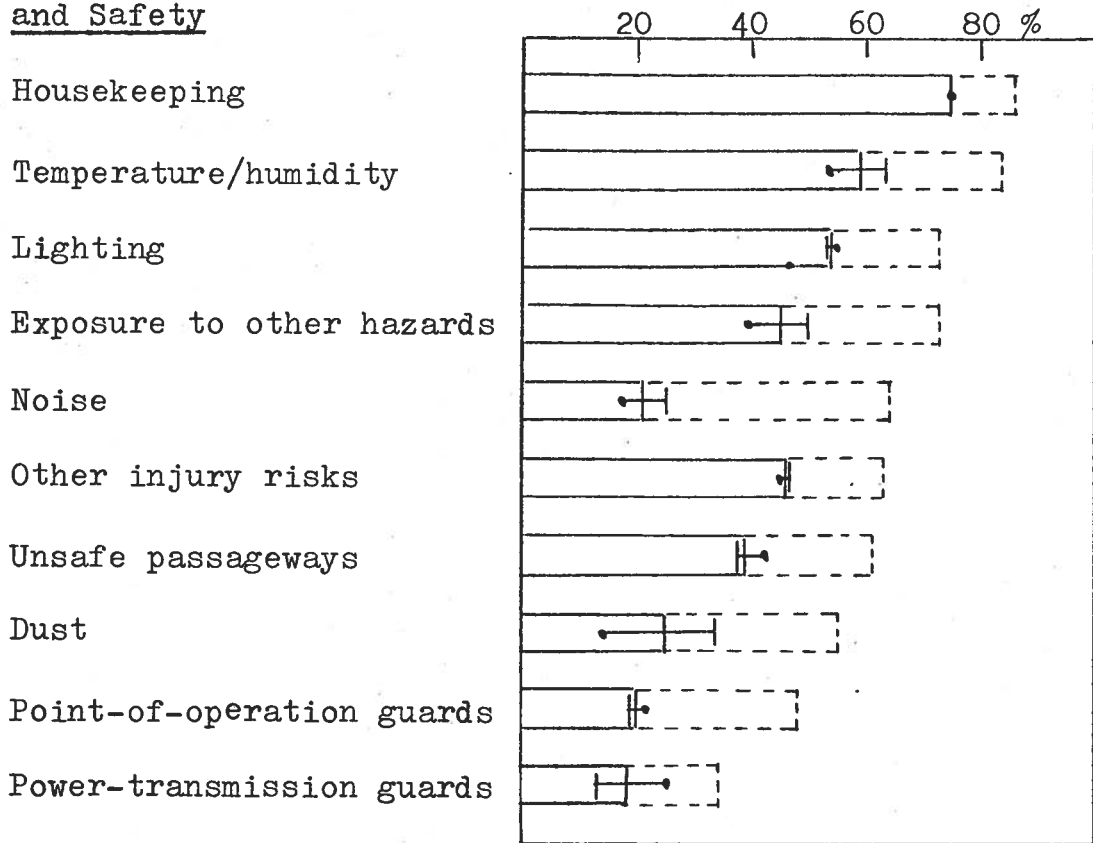


Fig. 13. (Continued).

(c) Workplace Environment and Safety



(d) Welfare and Social Services

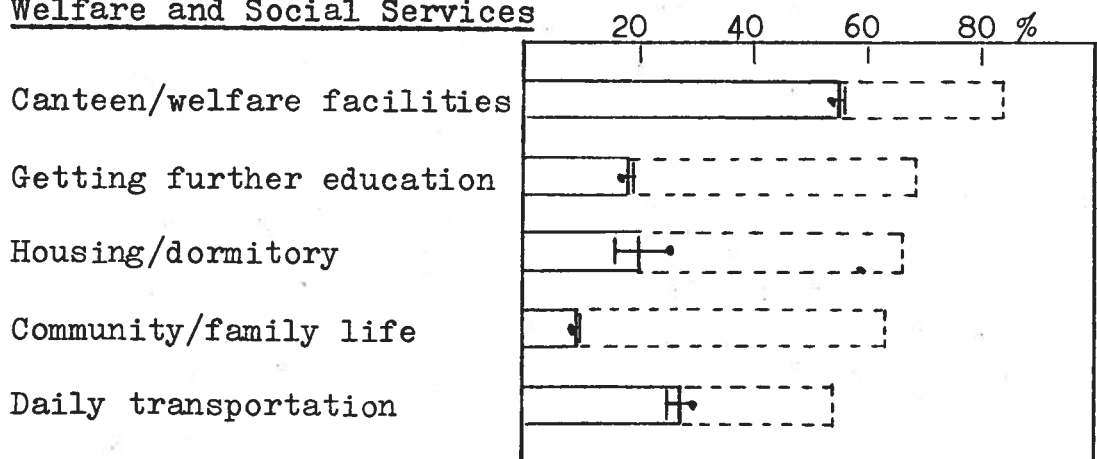


Fig. 13 (Continued).

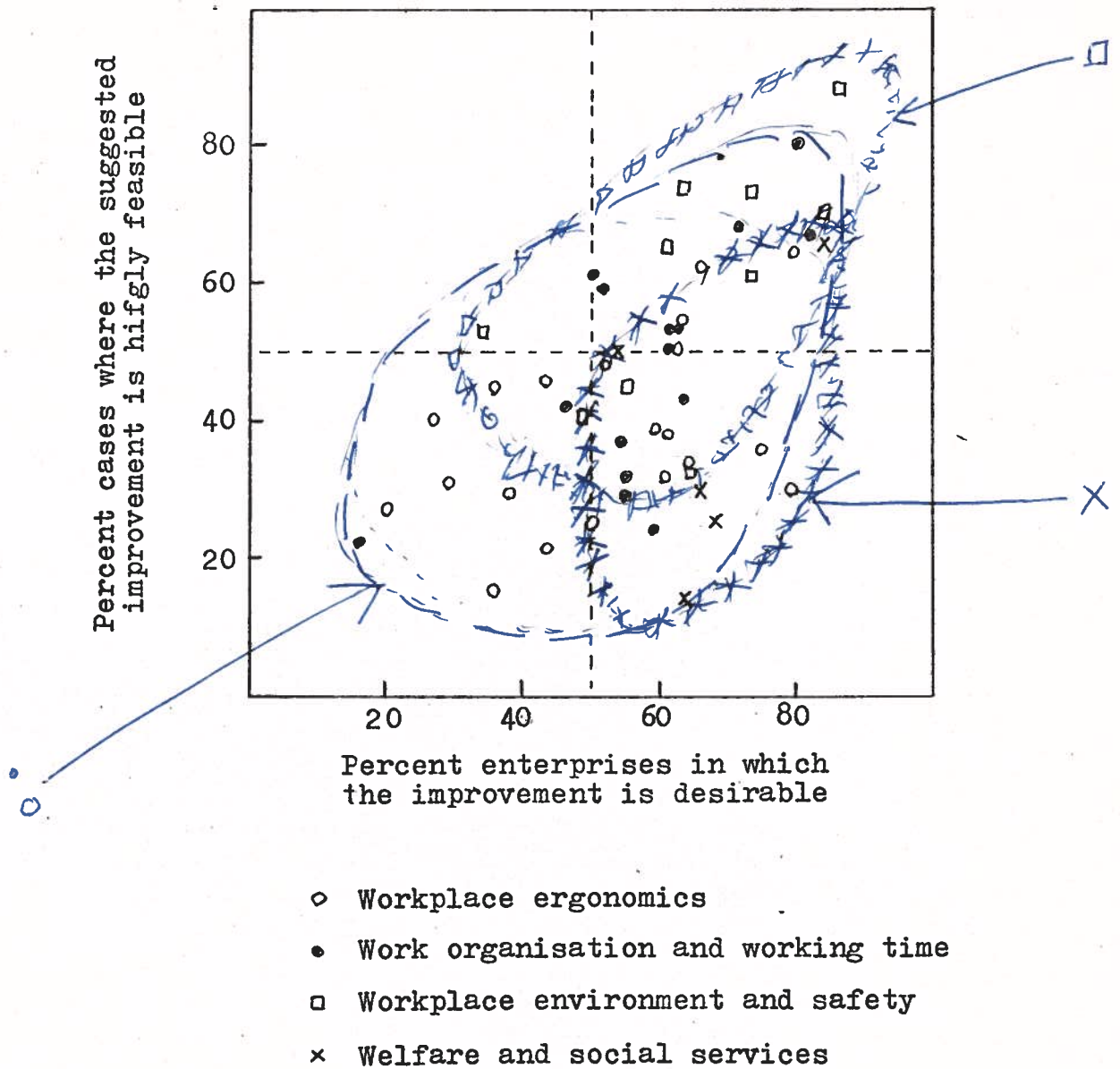


Fig. 14. Relation between the percentage of enterprises in which the improvement was desirable and the percentage of cases where the suggested improvement was considered to be highly feasible.

Table 8: Classification of improvement measures according to their commonness and feasibility

Area	Common and generally feasible	Common and partially feasible	Less common and partially feasible
I. Workplace ergonomics	<ul style="list-style-type: none"> -Chairs -Working surface height -Working postures -Design of tools -Displays and instructions -Reach for operation -Feeding machines* -Heavy material handling 	<ul style="list-style-type: none"> -Design of controls -Level of attention -Strenuous physical work -Space between machines 	<ul style="list-style-type: none"> -Visibility from worksite -Mental overload
II. Work organization and working time	<ul style="list-style-type: none"> -Training new workers -Duration of work spells -Hours of work -Retraining courses 	<ul style="list-style-type: none"> -Group work -Variety of tasks -Monotonous work -Learning new things -Participation in planning -Criteria of recruiting -Making a career -Cycle time 	<ul style="list-style-type: none"> -Rest periods -Talking freely -Shift rotation -Time being isolated -Fragmented jobs -Night work -Talking on the job -Weekly restdays/leave
III. Workplace environment and safety	<ul style="list-style-type: none"> -Housekeeping -Other injury risks -Lighting -Temperature/humidity -Unsafe passageways -Exposure to other hazards 	<ul style="list-style-type: none"> -Dust -Noise 	-Point-of-operation guards
			<p>Less common and generally feasible:</p> <ul style="list-style-type: none"> -Power-transmission guards*
IV. Welfare and social services	<ul style="list-style-type: none"> -Canteen/welfare facilities -Daily transportation 	<ul style="list-style-type: none"> -Housing/dormitory -Getting further education -Community/family life 	

* Measures for which the percentage of enterprises with high feasibility was significantly different between small and medium-sized enterprises at the 0.05 level.