

ASPECTS OF THE EXHIBITION OF SOIL MONOLITHS  
AND RELEVANT INFORMATION  
(provisional edition)

W.C.W.A. Bomer  
J.H.V. van Baren

1985



INTERNATIONAL SOIL REFERENCE AND INFORMATION CENTRE

Contents:	page:
Introduction	2
The use of soil reference collection	3
Contents of a soil reference collection	5
The exposition at ISRIC	7
The role of ISRIC	8
The unit of exhibition	9
Texts and drawing	11
Photography in the field	17
Soil derived land qualities	18
Micromorphology (photographs)	19
Materials used	23
Some alternatives for lettering	35
Construction of display panels	39
The Panels	41
The panels for the photographs/texts	42
Photography	44
Some remarks for making photographs/slides	45
Photographs of soil monoliths	55
Lightning of monoliths for photography	56
Photography for micromorphology	57
Photographs of texts and drawings	59
Poster sessions	60
The preparation of poster presentations- - some suggestions	62

Total 68 pages.

## 1. INTRODUCTION

For nearly a century, soil profiles have been collected in the field and put on display.

The first soil reference collection was made in Russia in the late 19th century and comprised a series of natural soil profile bodies which were kept in wooden boxes. Examples of these Russian soil profile bodies were first displayed outside Russia at the Colombian Exhibition in Chicago (1893-1894). These profiles were probably not impregnated and hardened into what we now call 'soil monoliths'. Subsequently, 18 soil profiles from Latvia and 10 from Hungary were put on display at the First International Congress of Soil Science in Washington in 1927, and a large collection of about 60 profiles was also shipped from the USSR for this congress.

Techniques of collecting soil profile bodies, and especially of impregnating and preserving them, have improved greatly since the 1930's and have been particularly used in the Soviet Union, Germany, Hungary, Poland and China. Among the first soil museums to be established were the Central Dokuchaev Soil Museum in Leningrad and the V.V. Williams Soil Museum of Timiriasev in Moscow, both of which have exhibited soil monoliths since their inception. The soil museums in Oxford, England; Warsaw, Poland, Budapest, Hungary and Peking, China should also be mentioned.

In most long-established soil museums, e.g. in the USSR and China, the profiles are not artificially hardened to allow a vertical display. The wooden boxes containing the soil bodies, have a slightly tilted position. In the USSR the profiles are placed in instructive diaramas, showing also flora and fauna, landscape drawings, climatic data and other environmental information.

Interest in removing soil profiles from the field and setting them up for study is growing, thanks to the improved techniques for impregnating the soils with readily available chemicals. Nowadays, at many international gatherings, such as international congresses of soil science, impregnated soil profiles are displayed. But only occasionally have these collections been retained and put on display. Nevertheless, there has been a vast increase in the number of institutions (e.g. universities, soil survey institutes, natural history museums) around the world with collections of soil monoliths.

Not only industrialized countries but also developing countries have started collections of soils and many countries have expressed interest in the establishment of national and regional soil reference collections.

In the present paper the methods employed at ISRIC are given on the preparation and display of photographs, explanatory texts, maps, diagrams, figures, etc.. This information is also useful for preparation of poster displays. It also shows technical aspects of the frame panels used for the display of soil monoliths at ISRIC. This provisional text is in addition to Technical Paper 1 on the impregnation and display of soil monoliths, and Technical Paper 2 on the photography of soils and associated landscapes. The purpose of this paper is merely to give ideas. The ultimate presentation should be adapted to the aims of the institution and, especially, the (prospective) visitors.

It should be realized that most visitors to ISRIC are professionals or students in soil science and closely related disciplines. Not much attention is therefore given to a general introduction to basic principles.

## 2. THE USE OF SOIL REFERENCE COLLECTIONS

Soil profiles are collected for many reasons. The type of reference collection, the way it is presented, and the number of soils shown can serve a variety of purposes. The most important goal of a soil collection is to increase awareness of the importance of soil as a natural resource to sustain life for present and future generations, and to highlight the pressing need for its conservation.

### Use for scientific training

Education, especially in natural sciences, benefits greatly from the use of examples from nature.

For students in soil science it is particularly useful to have the various types of soil to hand. In many institutions where training in environmental sciences is given, such as universities, agricultural schools and soil survey institutes, collections of loose, usually disturbed soil material are used as teaching material. Some institutions have 'soil correlation boxes'; a few have lacquer peels or soil monoliths. Such displays are very helpful in revealing the variety of soil and differences between

them on the regional, national, or international scale. Also, sequences of soils in the landscape and over time, and the influence of different soil management techniques, or of various soil degradation features, etc. can be shown.

#### Use for soil classification and correlation

Once a national soil survey organization has been established and an exploratory inventory of a country or region has been made, it is particularly useful to start building up a soil reference collection. This helps soil classification, correlation and soil interpretation. The collection also forms a basis for discussion and co-operation between the soil surveyor and the soil scientists and laboratory technicians working at headquarters. Visitors may exchange useful information about the classification of the soils on display and their production potential.

A collection of soils also enables specific research programmes to be set up. These may be of a comparative character or problem-oriented.

#### Use for planning purposes

Although in many instances the nature and behaviour of the soil is taken into account in the planning process, there is room for improvement in the communication between the soil scientist and agronomist, the extension officer, the land use planner, the farmer, the policy maker, and the administrator.

Soil monoliths and related data and information on climate, physiography, land use, and other ecological factors can convey convincingly the differences in soil characteristics and their use limitations, especially if the collection is accompanied by a series of maps, schematic cross-sections, colour photographs, etc.. In many cases it is often impossible to organize guided tours to field reference sites. A national soil reference collection at a centrally located site is the next best source of soil information.

#### Use for educating the general public

In many developed and developing countries there is an increasing awareness of the importance of soil as a natural resource that merits conservation. The media, especially television, can play a major role in making the public more 'soil-conscious'. To arouse public interest, soil reference collections should be established, and material from them conveniently displayed. Such collection could form part of a natural history museum,

either integrated with other aspects of the environment or presented as a separate topic. Or a national soil museum could be established, especially if a large collection of monoliths is available.

Attention should not only be focussed on the soils as such but also on the place of soil in the physical and biotic environments, and the link between soil and farming system. As well, aspects of soil conservation and soil degradation features such as salinization and desertification can be very instructively illustrated in a collection cum exhibition.

### 3. CONTENTS OF A SOIL REFERENCE COLLECTION

Items that could be included in a soil reference collection are mentioned below. Obviously, the aims and purposes of the collection will largely determine what the collection contains. The aims do change, however, and some of the items mentioned below may be not have an immediately obvious purpose, but could be very useful at a later date.

#### Monoliths or lacquer profiles

Monoliths are soil profiles, collected in boxes and impregnated indoors. They are usually 25 cm wide and 125 to 150 cm long. The thickness of the impregnated soil varies, but is usually from 2 to 5-8 cm. Monoliths show many of the natural soil characteristics, such as colour, structure, horizonation, rooting depths.

Lacquer profiles or lacquer peels are soil profiles impregnated in the field. They may be the same size as a soil monolith but are usually much thinner and the structural characteristics of the soil cannot be observed as well as in a monolith.

Both methods of taking soil profiles and the resulting impregnated products have their advantages and disadvantages. Details are given in Technical Paper 1.

#### Publication and photographs

To give a complete picture of site and soil it is very useful to assemble publications (including maps) on the soil and on the geology, vegetation, land use, climate, and other relevant subjects. Yield data, infiltration rates, hydraulic conductivity of the substratum and other data should also be collected. Obviously, colour photographs and/or colour slides

are very helpful in showing the landscape, vegetation, land use, etc.. Also, the site where the profile was collected should be photographed. For information about photographing soil profiles and landscapes, see Technical Paper 2.

### Presentation

There are many ways in which the material collected can be presented. The method chosen depends on such aspects as the aim and purpose of the collection, the number of monoliths/lacquer profiles, facilities available, the staff available to present and maintain the display, etc.. Some examples are given below.

*- A collection of soils for education/study at an agricultural university, soil survey institute, or similar.*

This collection should be displayed in a permanent set-up. The monoliths and/or lacquer profiles should be tilted backwards some 10-15 degrees, with their bases on a table or, preferably, on specially designed staging equipped with bench-hooks. Since the lacquers used for the impregnation usually decompose under the influence of ultraviolet light, the monoliths should not be exhibited in full daylight. Aim for the best artificial illumination. It is very useful to present colour photographs of the landscape and site, graphs, tables and other relevant information near the monolith.

*- A collection of soils for the information of the general public.*

A soil collection is regarded as a useful addition to natural history and earth science museums. Since soil profiles, especially soil monoliths, are unfamiliar items, they need explanation. It is also useful to show the place of soil science in relation to other natural sciences and to point out the variety of uses that can be made of soil data. The soil can then be presented as an important part of the ecosystem, highlighting aspects such as the formation of the soil from the parent material by the action of soil-forming factors. Different kinds of rocks and soil material can be shown for comparison. Soil material is also used for manufacturing various types of bricks and earthenware and is needed for the construction of roads and even of mud-houses, and therefore these aspects could also be touched on, as they emphasize the general utility of soil material.

The soil monolith or lacquer profile itself should be supplemented with relevant information about vegetation, land use, location in the landscape, and other geographical information. Agricultural aspects such as the crops grown and the various land qualities are also to interest many visitors. If feasible, free hand-outs should be available on the material presented. If there are too many monoliths for the exhibition space, adequate storage facilities should be available.

#### 4. THE EXPOSITION AT ISRIC

The major aim of the exposition is to inform the visitor about genetical aspects of soil formation and the classification of the soils in various soil classification systems in order to improve soil correlation and, ultimately, the use of the soil.

The exposition is divided into four parts:

1. About one-half of the space is used for soil monoliths and relevant information, representative for the 26 major units of the FAO-Unesco Soil Map of the World.
2. About one-third is used for soil toposequences and chronosequences, collected around the world and for special collections, e.g. soils used for paddy, surface sealing. Each presentation has 1-4 monoliths, with explanatory text and photographs.
3. Attention is being given to the micromorphological characteristics of the soil, mostly on the basis of photomicrographs.
4. This space is used for new acquisitions and for monoliths which have been taken from the store upon request for visiting groups.

Furthermore, there is space to show all 19 sheets of the Soil Map of the World and other maps. A glass (vitrine) shows different soil structures and materials such as plinthite, ironstone, silcretes.



## 5. THE ROLE OF ISRIC

Since its inception and especially since the establishment of a formal annual course, ISRIC has given written and oral information, advice and training on taking and preserving soil profiles and on the use of soil reference collections. This information ranges from the technical aspects of displaying and storing soils and data, to the best ways of providing different types of information to people who visit such collections.

### a. It can advise on

- taking and preserving soil monoliths and collecting relevant information and data (including which chemicals and equipment to use, etc.).
- how to display soil reference collections and the associated relevant information and data on soils (including advice on illumination, handling of photographs, etc.).
- storage of soil monoliths.

Visitors (preferably by appointment) can receive this advice verbally. Written information can also be given, but this is normally of a more general nature, unless the question is specific. The advice is usually provided free of charge, especially to people from or working in developing countries.

- b. At the request of some developing countries and with the support of Unesco, ISRIC gives a short course every year entitled: 'International Course on the Establishment and Use of Soil Reference Collections'. The course is given during 5 weeks in June/July of each year. Preference is given to participants from developing countries who will be engaged in setting up soil reference collections. Some Unesco fellowships are available for persons attending this course. After the course, participants will be able to set up a soils collection and be familiar with all the related activities mentioned earlier. ISRIC can provide further technical back-up to such projects.
- c. ISRIC personnel have had practical experience in collecting and preserving soils and setting up soil reference collections in a number of countries and they are available for consultancy work.

### The unit of exhibition

Each unit of exhibition in the exposition of the ISRIC consist normally of: (see figure 1)

1. the soil monolith and rule
2. text sheets
3. photographs of landscape and micromotphology
4. figures/diagrammes
5. soil information sheets

As will be seen, the flexibility of the display is quite large and the exposition can be adjusted with use of the same materials easily to fit the wishes.

General comments:

As can be seen in figure 1 the information provided at the different sheets is at several sizes, the text in bold face letters can be

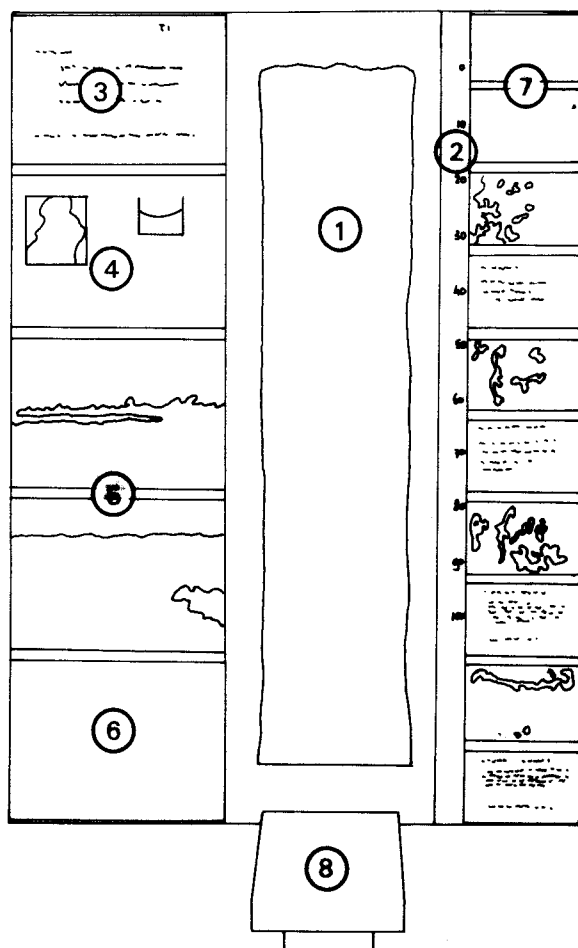
read at a distance of 1.5 - 2 meters, the smaller letters at a distance of 0.5 - 1 meter.

For the whole text black lettering, on white or very light grey paper is preferred.

All text sheets and photographs are covered with a self-adhesive, non-glossy plastic sheet. This allows photography by visitors of the exhibition without difficulties.

Lettering: type: Univers

Fig. 1. The unit of exposition.



1. Soil monolith
2. Adjustable ruler.
3. Classification, location.
4. Location map, climatic data, land use, parent material.
5. Landscape, site.
6. Additional data.
7. Micromorphology photo's and explanatory texts.
8. Soil information sheets.

### Texts and drawings

For the preparation of the texts and drawings use is made of two different methods.

1. Larger texts are made directly with use of the Mecanorma self-adhesive lettering system.
2. small texts pe. for micromorphology are typed and enlarged photographically.

If available, the letter type used should resemble as much as possible the formed type.

The basic information has been printed.

1. The soil monolith.

For the impregnation and preparation of soil monoliths reference is made to ISRIC Technical Paper 1.

Procedures for the collection and preservation of soil profiles.

2. The Ruler.

Since the soil monoliths are very different, the ruler should be of an adjustable type. (See fig. 2)

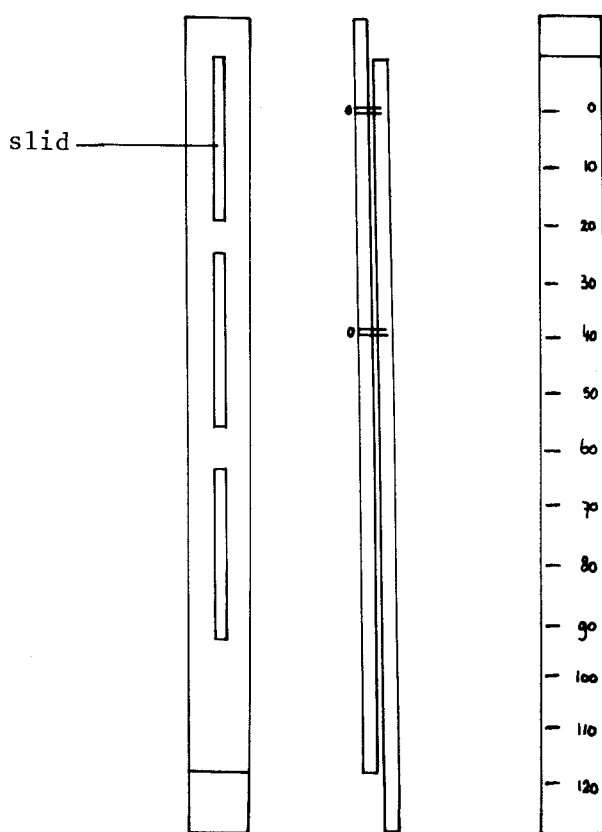


Fig. 2. The adjustable ruler.

The material of the ruler is  
with a thickness of            mm.

3. The classification - location sheet.

This information sheet contains classification in several soil classification systems and the location of the site from where the profile was collected. (See fig. 3 + 4)

<p><b>Classification:</b></p> <p>    <b>FAO / Unesco :</b></p> <p>    <b>USDA           :</b></p> <p>    <b>Local           :</b></p> <p><b>Location:</b></p>
--

figure 3. classification - location sheet.

**Classification :**

**FAO / Unesco :**

figure 4. lettering at life-size.

#### 4. Location/climatic data/land use/ parent material.

This information sheet contains a small scale location map, climatic data, vegetation and land use characteristics and the parent material. (See figure 5)

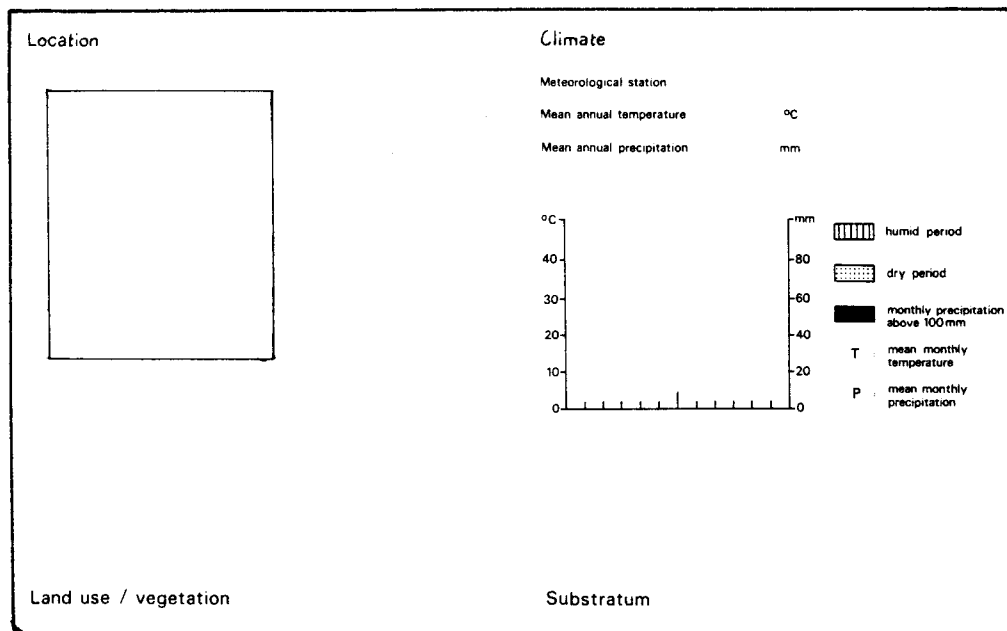


Figure 5.

#### Location map

This is a small-scale, very generalized country map with an indication of the capital and site from where the profile was collected.

With the use of self-adhesive color film (Mecanorma matte finish, named Filmomatt) , the country concerned has been given emphasis.

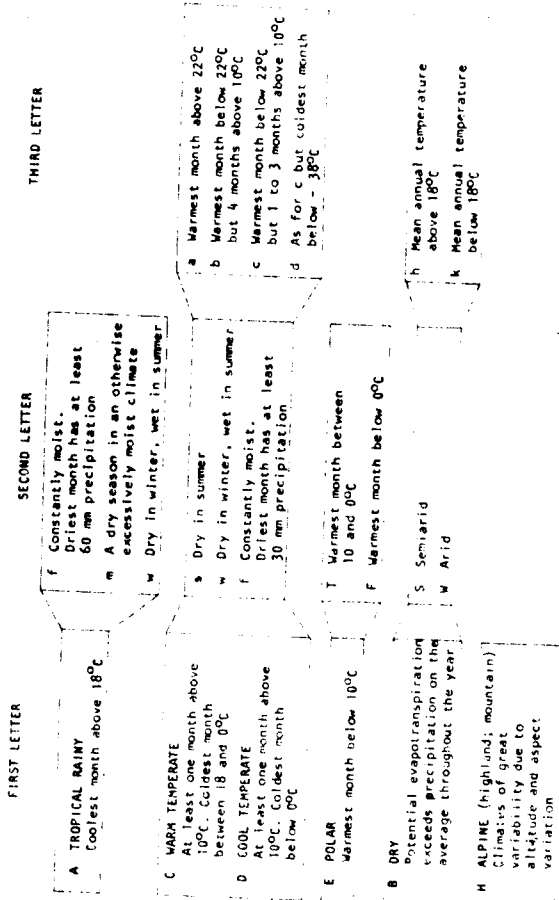
#### Climatic data

Use has been made of the system developed by Gauszen as used in the Klimmadiagramm Atlas by Walter & Lieth ( Jena, 1967 ).

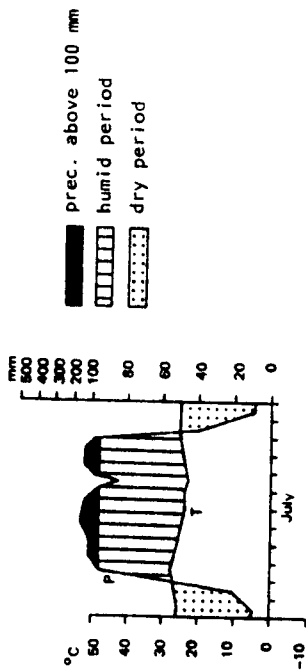
The following general remarks on this system can be made:

- E. POLAR  
Warmest month below 10°C
- B. DRY  
Potential evapotranspiration exceeds precipitation on the average throughout the year
- H. ALPINE (highland; mountain)  
Climates of great variability due to altitude and aspect variation

The climates are subdivided as follows:



Climate. In the diagram the atmospheric climatic data are given according to the system developed by Gausson in 1954 and used by Walter and Lieth in the "Klimadiagram Weltatlas" (1967). Two curves are given:  
 T: curve of mean monthly temperatures in °C.  
 P: curve of mean monthly precipitation in mm.  
 If the monthly precipitation is above 100 mm this is indicated in black and the height is reduced to 10%.  
 The scale used is 10°C = 20 mm.  
 On the horizontal line the months are indicated from the left to the right, starting with January on the northern hemisphere and with July on the southern hemisphere.  
 A humid period is supposed to exist when the temperature curve is below the precipitation curve (vertical stripes in the diagram).  
 A dry period is supposed to exist when the temperature curve is above the precipitation curve (punctuated in the diagram).



It may be added that, although there is a correlation between the soil climate as used in Soil Taxonomy, and the atmospheric climate, this correlation is not perfect.  
 In the Köppen (1935) classification system, simplified after Greenland and DeBliz, 1977, the following climates are distinguished:

- A. TROPICAL RAINY  
Coolest month above 18°C
- C. WARM TEMPERATE (mesothermal)  
At least one month above 10°C  
Coldest month between 18°C and 0°C
- D. COOL TEMPERATE (microthermal)  
At least one month above 10°C  
Coldest month below 0°C



### Vegetation and land use characteristics

This part of the information can be in general terms or in detail according to the wishes.

If in general terms (e.g. arable land, grassland, semi-deciduous forest, etc.) this will not satisfy most visitors and a more elaborated write-up will be needed. This may also include such information as the species commonly found, crop rotations, and the yield of specific crops.

### Parent material

This part includes information on the parent material underlying the soil profile, the facies of the deposition.

If known, the age should be mentioned as well.

### Photography in the field

Together with the profile taking, at least four pictures are made (slides or photographs) of:

- a. landscape
- b. vegetation/land use
- c. profile
- d. detail(s) of profile

The pictures are used in the exhibition of the monolith. They give a quick impression of the natural surroundings of the soil.

Film used: Kodacolor II C 135 daylight ASA 100 - DIN 21 (photographs)

Agfachrome CT 18 ASA 50 -DIN 18 (slides)

### Landscape and site

Two colour photographs should present the prevailing landscape of the region and the site from where the profile was collected.

Since the enlargements have a size of 30 x 40 cm, the photonegatives should be of sufficient quality.

If positives ( slides) are used, these should be of a very high quality, slide duplicats are usually of too low a quality to result in clear photographs.

However, one does not always has a choice and a low quality photograph gives still more information than none at all.

The prints should preferably be glossy and are covered with a non-glossy, self adhesive plastic sheet.

For suggestions on the photography of soils and landscape, reference is made to ISRIC Technical Paper 2; The Photography of soils and aassociated landscapes.

## Soil-derived land qualities

Since many visitors are interested in the (potential) use of the soil, it has been found practical to give an indication of soil-derived land qualities. (See figure 6 )

Soil-derived Land Qualities			
Land Quality	Rating	Limiting factor(s)	Notes
Effective soil depth			
Moisture (storage and transmittance capacity)			
Oxygen availability			
Nutrients availability			
Stability (resistance to water and/or wind erosion)			
Arability (workability for hand and/or mechanized cultivation)			
Tilth (condition of topsoil for seedbed preparation and initial seedling growth)			
Foothold for roots			
Remarks			

Fig.6 Soil-derived Land Qualities.

The following data are presented at the ISM exhibition:

- effective soil depth
- land qualities
- moisture (storage and transmittance capacity)
- oxygen availability
- nutrients availability
- stability (resistance to water and/or wind erosion)
- arability (workability for hand and/or mechanized cultivation)
- tilth (condition of topsoil for seedbed preparation and initial seedling growth)
- foothold for roots

For each land quality a rating and the limiting factor are given.

The information presented here can of course adapted to fit the specific requirements.

### Micromorphology

On this panel attention is given to the most prominent micromorphological features of the soil, plus a short explanation. (see fig. 7)

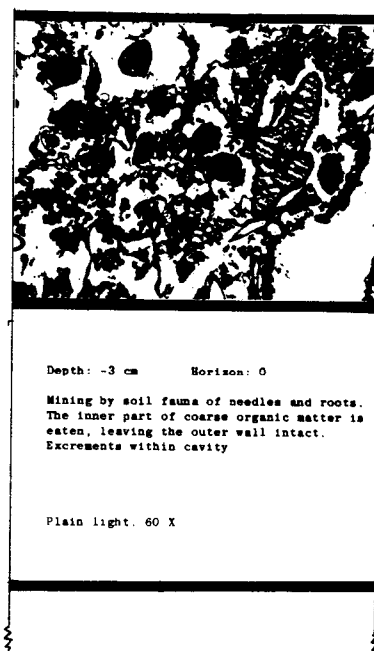


Figure 7.

The colour photographs are taken with different illuminations and magnifications. They are laminated with a self-adhesive, non-glossy plastic foil.

The texts are typed and enlarged photographically. They are laminated with the same material as the photographs.

### Soil information sheets

Scientists and students who wish to take home information on the displayed soils, can take a copy of the soil information sheets. These sheets are available for all the soils on display. For the contents, see figures 8 and 9.

The abbreviations and codes used are described fully in a booklet, which is also available for distribution.

CLASSIFICATION

FAO-Unesco:  
USDA :  
Local :

LOCATION AND SITE

Mallaranny, Co. Mayo, Ireland.  
Undulating to rolling country, slope of site gently sloping.  
Elevation 50 m.

PARENT MATERIAL / SUBSTRATUM

Glacial till, underlain by schists and quartzites of Pre-Cambrian age

VEGETATION AND LAND USE

Low grasses and heath (probably *Erica mediterranea*)

BRIEF DESCRIPTION OF THE PROFILE

A topsoil, rich in organic matter, overlies a well-developed bleached eluvial horizon. At 50 cm a placic horizon occurs at the transition of the humus B and iron B illuvial horizons. Throughout the profile slightly to strongly weathered gravels occur, mainly consisting of quartzite and schists.

Diagnostic characteristics:

FAO-Unesco: spodic B horizon, thin iron pan  
USDA : spodic horizon, placic horizon

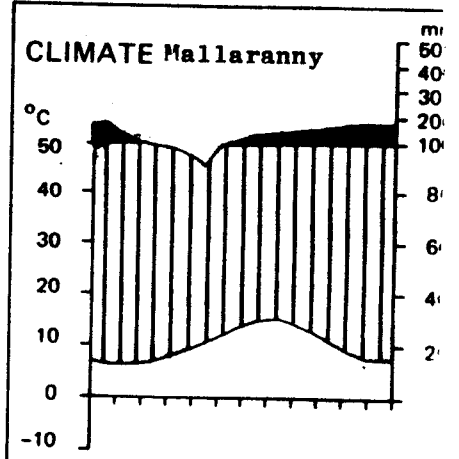
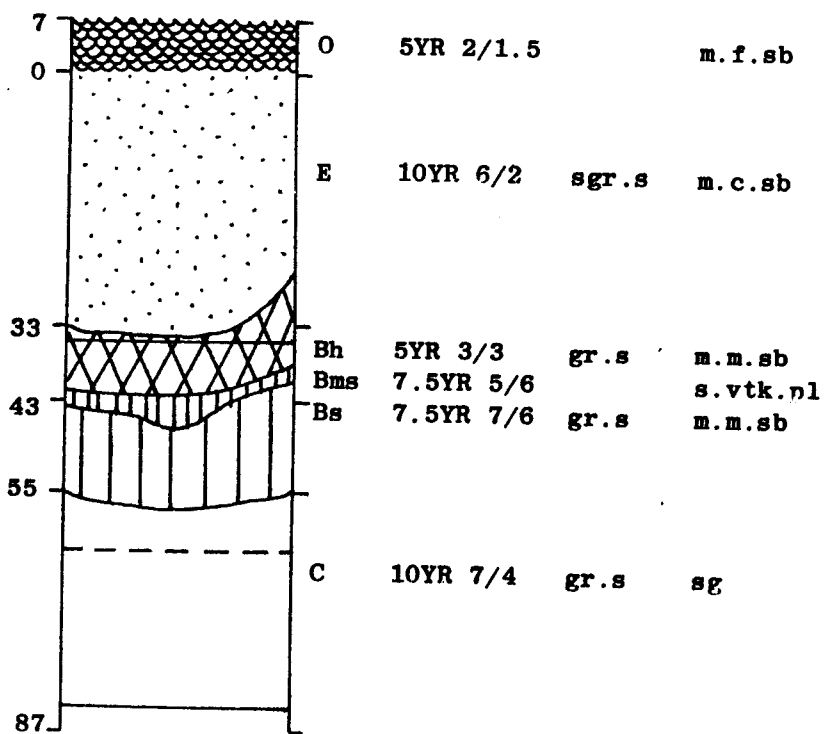


fig. 9

Particle size distribution (ppm) (weight %)

No.	Depth cm	Horizon	Particle size distribution (ppm) (weight %)										pH		CaCO <sub>3</sub> %	Org. matter			'Free' Fe <sub>2</sub> O <sub>3</sub> %	
			> 2 mm	Sand					Silt		Clay < 2	H <sub>2</sub> O	KCl	C %		N %	C/N			
				2000	1000	500	200	100	50	20										
1	7-0	0																		
2	3-23	E	15	49				33	11	6	1	3.8	2.8					0.66		
3	33-43	Bh	35	41				35	13	7	4	4.6	3.9					0.58	0.01	53
4	43-55	Bs	32	48				29	13	8	2	4.4	3.8					1.38	0.03	43
5	70-80	C	30	45				35	13	5	2	4.5	4.2					0.24	0.01	29
6												5.0	4.6					0.11	0.01	10

No.	Exchangeable cations					Sum meq/100 g	Exch. acid.	CEC		BS %	EC (mS/cm)	Water soluble salts									
	Ca	Mg	K	Na	Soil			Clay	Ca			Mg	K	Na	CO <sub>3</sub>	HCO <sub>3</sub>	Cl	SO <sub>4</sub>			
1																					
2	0.4	0.3	tr	0	0.7			4.0		17											
3	0	0.3	0.1	0	0.4			7.9		4											
4	0	0.2	0.1	0	0.3			4.9		6											
5	0	0.2	tr	0	0.3			3.8		7											

No.	Elemental composition of the total soil (weight %)											Molar ratios			
	SiO <sub>2</sub>	Al <sub>2</sub> O <sub>3</sub>	Fe <sub>2</sub> O <sub>3</sub>	CaO	MgO	K <sub>2</sub> O	Na <sub>2</sub> O	TiO <sub>2</sub>	MnO	P <sub>2</sub> O <sub>5</sub>	Ign. loss	SiO <sub>2</sub> /Al <sub>2</sub> O <sub>3</sub>	SiO <sub>2</sub> /Fe <sub>2</sub> O <sub>3</sub>	SiO <sub>2</sub> /R <sub>2</sub> O <sub>3</sub>	Al <sub>2</sub> O <sub>3</sub> /Fe <sub>2</sub> O <sub>3</sub>
	1	53.9	3.6	0.9	0.1	0.3	1.1	0.5	0.2	0	0.1	40.0	25.4	159	21.9
2	85.8	7.4	0.7	tr	0.4	2.0	1.2	0.4	0	0	1.6	19.7	325	18.6	16.5
3	84.2	7.7	0.9	tr	0.6	2.1	0.9	0.5	0	0	3.1	18.6	248	17.3	13.4
4	80.3	7.3	4.8	0.1	0.5	2.0	0.9	0.5	tr	0.1	2.0	18.7	44.4	13.1	2.4
5	83.7	7.6	3.7	0.1	1.1	2.1	0.8	0.5	0.1	0.1	1.7	18.7	60.1	14.3	3.2

No.	Elemental composition of the clay fraction (weight %)											Molar ratios			
	SiO <sub>2</sub>	Al <sub>2</sub> O <sub>3</sub>	Fe <sub>2</sub> O <sub>3</sub>	CaO	MgO	K <sub>2</sub> O	Na <sub>2</sub> O	TiO <sub>2</sub>	MnO	P <sub>2</sub> O <sub>5</sub>	Ign. loss	SiO <sub>2</sub> /Al <sub>2</sub> O <sub>3</sub>	SiO <sub>2</sub> /Fe <sub>2</sub> O <sub>3</sub>	SiO <sub>2</sub> /R <sub>2</sub> O <sub>3</sub>	Al <sub>2</sub> O <sub>3</sub> /Fe <sub>2</sub> O <sub>3</sub>
	1	51.6	25.3	4.3	0.1	1.6	6.4	0.2	2.1	0	0.3	8.3	3.5	31.9	3.1
2	47.5	25.2	4.9	0	2.1	5.4	0.3	1.8	0	0.3	10.3	3.2	25.8	2.8	8.1
3	36.4	18.9	26.7	0	1.7	3.9	0.3	1.2	0.2	0.8	10.4	3.3	3.6	1.7	1.1
4	43.0	21.6	16.5	0.1	2.3	4.7	0.4	0.8	0.5	0.7	9.5	3.4	6.9	2.3	2.0

Clay mineralogy											
No.	Kaol	Mi/Ill	Verm	Chlor	Smec	Mix (m.i.ch)	Quar	Feld	Gibb	Goeth	Hem
1											
2	++	++		-	+	++	xx	x			
3	++	++		+	+	++	xx	x			
4	++	++		++	-	+	x	tr			
5	++	++		++	-	+	x	tr			

No.	Sand mineralogy			Bulk density (kg/dm <sup>3</sup> )	Soil moisture		
					pF 2.0	pF 2.5	pF 4.2
1							
2							
3							
4							
5							
6							
7							
8							



# Mecanorma over de gehele wereld

## EUROPE

### Austria

OMEGA Ges.mBH  
Schloegelgasse 22  
1125 Wien  
Tel. 0222/843573

### Belgium

MECANORMA S.A.-N.V.  
Rue Cap. Crespelstraat 53  
B. 1050 BRU - Tel. 02/512.79.12

### Danemark

SCANLETTERS APS.  
Bygmarken 21 - DK 3520 Farum  
Tel. 02/953333

### Finland

O.Y. Wulff  
Postbox 430  
Mannerheimintie 4  
Helsinki 10 - Tel. 646311

### France

MECANORMA S.A.  
14, route de Houdan  
78610 Le Perray-en-Yvelines  
Tel. (3) 483.92.66

### Germany

MECANORMA G.m.b.H.  
Siegburger Str. 96,  
4000 Düsseldorf 13  
Tel. 0211/722074-76

### Great Britain

MECANORMA LTD  
10 School Road-Acton  
London NW 10  
Tel. 01 961.65.65

### Greece

TECHNIGRAF  
21, rue Skoufa - 136-Athènes  
Tel. 36.38.215

### Holland

O'HARRIS Import Co.b.v.  
Klapbrugweg 6  
Bedrijvenpark De Vaart 1  
1332 Ak Almere  
Tel. 03240.20064

### Italy

ADIT - S.P.A.  
Via Segrino 8  
20098 Sesto Utiérano  
(Milano) - Tel. (02) 98.81.241 (5 linee)

### Malta

TUDOR PRESS  
163, Psaila Street  
Birkirkara - Tel. 42317

### Norway

ARGOS  
Prinsensgt 7  
Oslo 1  
Tel. 41.05.61

### Poland

EXIMPOL  
Ul. Stawki 2/28  
Warszawa  
Tel. 39.90.89

### Portugal

PAPELARIA FERNANDES  
Largo do Rato 13 - Lisboa 2  
Tel. 68.21.31

### Spain

CASANOVAS Y ROCA  
Juan Guell 220  
Barcelone 28  
Tel. 321.12.08

### Sweden

MECANORMA SVENSKA  
Box 3222 - Brunnsgatan 6-8  
S10364 - Stockholm 3  
Tel. 241645

### Switzerland

REXEL SIGNA AG Flughafenstr. 50  
8152 Glattbrugg  
Tel. 810.66.71

## AMERICA

### (North and South)

### Antilles (Netherlands)

SAMSON CURACAO N.V.  
Schottegatweg Oost 215  
Willemstad  
Curaçao  
Tel. 37675

## Argentina

DESALVO HNOS S.A.C.I.F.I.A.  
Bernardo de Irigoyen 276  
1072 Buenos Aires  
Tel. 37.11.58

## Bolivia

STEPHAN & CIA  
Av. Camacho 1345 - 2° Piso  
La Paz - Tel. 351747

## Canada

TALENS  
2 Waterman  
St Lambert  
Québec J4P 1R8  
Tel. 672 9931

## Chile

ARTEL - Matias Cousino 64  
Casilla 13211 Santiago  
Tel. 66351

## Colombia

INSTRUMENTARIUM  
Carrera 9 a N° 16-89  
Apartado Aereo 9165  
Bogota - Tel. 399400

## Equator

CASA VALAREZO  
Avenida 10 de Agosto 606  
Quito - Tel. 521919

## Guadeloupe

MICHELINE LOUARD  
Les Hibiscus  
B.P. 31 - Route des Abymes  
97151 Pointe-à-Pitre Cedex  
Tel. 82.15.30

## Guyane

PAPETERIE PION  
36, rue du Lt-Brasse  
Cayenne

## Martinique

PAPETERIE PENCHE  
29, rue Ernest-Renan  
Fort-de-France - Tel. 718996

## Mexico

MECANORMA SA de C.V.  
Pino n° 440-A  
Col. Sta. Ma. insurgentes  
06430 Mexico d.f.  
Tel. 541.68.00

## Peru

LETRANORMA  
Avda. Merino 1730  
Lince-Lima - Tel. 716313

## Suriname

VACO NV  
Dominesstraat 2632  
P.O. Box 1841  
Paramaribo  
Tel. 72545

## Uruguay

ERNESTO A. MARTINS  
Juan Paullier 1059  
Montevideo  
Tel. 41.01.09

## U.S.A.

MARTIN INSTRUMENT CO.  
13450 Farmington Road  
Livonia  
Michigan 48150  
Tel. area code (313) 525.19.90

## Venezuela

PARAGON  
Apartado 50713  
Caracas 105  
Tel. 363200

## MIDDLE EAST

### Cyprus

RAINBOW AGENCIES  
P.O. Box 1580  
Archbishop Makarios III  
Avenue N° 40 B - 42  
Nicosia - Tel. 45979

### Egypt

SAMIR & ALY  
21 Sherif street  
Cairo  
Tel. 746062

### Jordania

CARAVELLE BOOKSHOP  
P.O. Box 9085  
Amman  
Tel. 24838  
Tx. 23212

### Kuwait

AL SALHIA OFFICE APPLIANCES  
P.O. Box 2185  
Salmiyah  
Tel. 420089  
Tx. 46417

### Lebanon

STAR STATIONERS  
P.O. Box 1631 - Maarad Street  
Beirut - Tel. 226070

### Saudi Arabia

HASSAN AZZEE ESTABLISHMENT  
P.O. Box 7880  
Jeddah  
Tel. 02-6712742  
Tx. 403283 AZZEE SJ

### Syria

LIBRAIRIE JABER HAYAN  
42, Al Fourat Street  
Damascus - Tel. 116733

### Tunisia

L'ORGANISATION  
RATIONNELLE DU BUREAU  
2, rue des Tanneurs  
TUNIS 1000  
Tel. 245.260

## FAR EAST

### Hong Kong

INTERNATIONAL TRADING  
AGENCY - 14th Floor,  
Man on Building  
12-13 Jubilee Street  
Tel. 5-454014  
5-453659

### Indonesia

GENERAL PRINTERS SUPPLY  
REPRESENTATIVE  
60 A Senen Raya  
Jakarta  
Tel. 45764

### Japan

UCHIDA YOKO Co Ltd  
4-7 Shinkawa 2  
Chome Chuo-Ku 4  
Tokyo

### Malaysia

MULTIARTS & GRAPHICS SDN.BHD  
Head office  
21 Tepian Loke Yew,  
Kuala Lumpur  
Tel. 03-431734, 431682 & 431873  
Tx. MA CANO 30107

### Philippines

TIMES TRADING CO. INC.  
474-476 Quintin Paredes St  
Manilla 2804  
P.O. Box 179 Manilla 2800  
Tel. 47.23.61 to 65.

## Singapore

"KINGSLEY ART CENTRE PTE LTD"  
68, Orchard Road 03-14  
Plaza Singapura  
Singapore 0923  
Tel. 3363907

## South Korea

MON AMI CO. LTD.  
12-1, 4-Ka, Chungmu-ro  
Chung-ku  
Seoul  
C.P.O. Box 3068

## Thailand

SIAMWALLA LTD.  
210 Surawong Road  
Bangkok 5 - Tel. 33988-9

## AFRICA

### Mauritius

Robert LE MAIRE GRAPHIQUE LTEE  
rue Sir William Newton  
Port Louis  
Tel. 2-1865  
Tx. 4331

### Ivory Coast

LIBRAIRIE POCIELLO  
B.P. 1757  
Abidjan - Tel. 321565

### Nigeria

AYO YEMISI & ASSOCIATES  
P.O. Box 4369  
2 Awoyokun street, via Ikorodu road  
Palm Grove  
Lagos State  
Tel. 823 136

### Morocco

AMERICAN PERFECT RAPID  
143, bd du 11-Janvier  
Casablanca - Tel. 21223

### Réunion

ARM PAJANI  
Angle CD 44, chemin du gymnase des  
deux canons  
B.P. 57  
97490 Ste Clothilde  
Tel. 28.15.96

### South Africa

STAEDTLER  
14 Jubert Road  
P.O. Box 27031  
Benrose 2094  
Tel. 011 6184622/3/4/5  
Tx. 8-0032 SA

## OCEANIA

### Australia

BARKER GRAPHICS PTY LTD  
Survey House  
107/115 Howard street  
North Melbourne  
Victoria 3051  
Tel. 3283441  
Tx. 36862  
JASCO PTY LTD  
937/941 Victoria road  
P.O. Box 135  
West Ryde  
Tel. 8071555  
Tx. 22598

### New Caledonia

NOPAC - Rue de Sébastopol  
Nouméa - Tel. 758.28

### New Zealand

CALDWELL WHOLESALE LTD.  
58 Waione Street  
Petone  
P.O. Box 38228  
Tel. 687-122

### Tahiti

HACHETTE PACIFIQUE  
10, av. Bruat  
Papeete - Tel. 29610  
LE METAGRAPH - B.P. 24  
Papeete - Tel. 20-320  
POLYGRAPH  
B.P. 707  
rue du Cdt. Destremeau  
Papeete  
Tel. 28047  
Tx. 323 FP

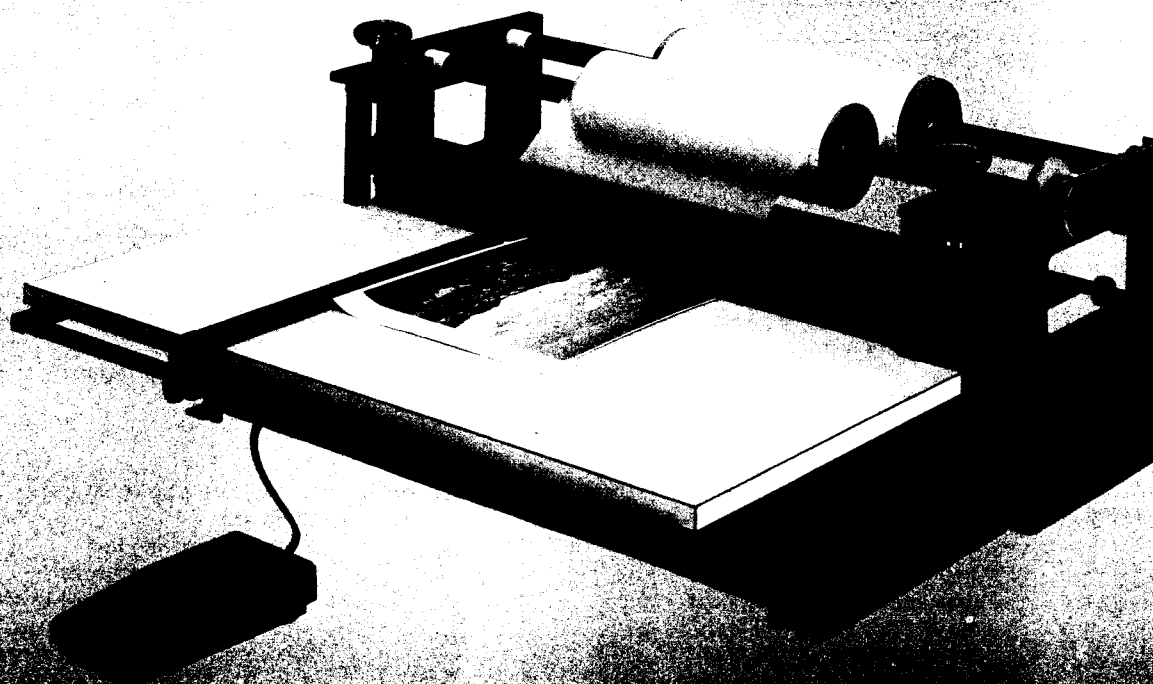
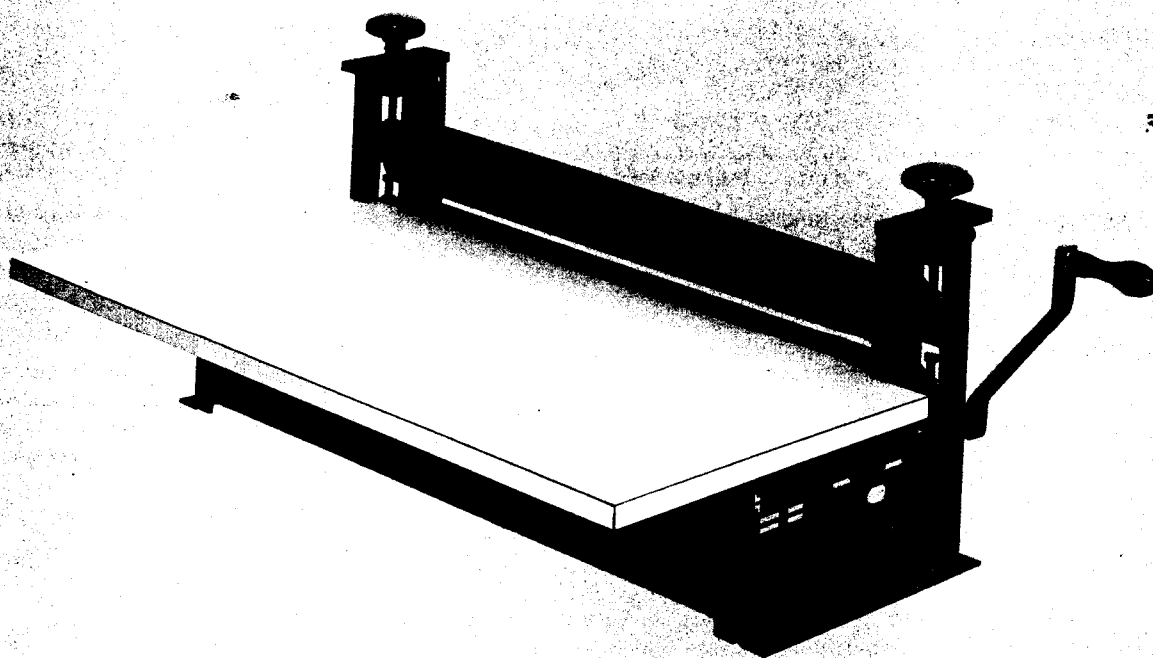


78610 Le Perray-en-Yvelines — France. Tél. : 69 6847 F  
Mecanorma Industries — R.C. Versailles 659805097

Mecanorma. Studio Peps

Achévé d'imprimer en décembre 1984 par  
Printer, industria gráfica s.a.  
Provenza, 388 Barcelona-25 Espagne  
Dépôt légal B. 90-1984  
Imprimé en Espagne





## K 600 H

Aufzieh- und Kaschiergerät (manuell)  
 Cold Mounting and Laminating Machine (hand drive)  
 Machine à adhésiver et à contre-coller (manuelle)  
 Opzet- en cacheermachine (handbediening)



## K 600 M

Aufzieh- und Kaschiergerät (Motor)  
 Cold Mounting and Laminating Machine (motor)  
 Machine à adhésiver et à contre-coller (électrique)  
 Opzet- en cacheermachine (electromotor)



**Technische Daten:**

Max. Einsatzbreite	650 mm
Max. Durchlaßbreite	655 mm
Walzenabstand	0 - 35 mm
Durchlaufgeschwindigkeit	1,8 m/min. (Mod.M)
Anpreßdruck	ca. 70 kg/cm <sup>2</sup>
Antrieb	220 V / einphasig
Unfallschutzvorrichtung	durch beschränktes Drehmoment des Antriebes (Mod.M)

**Aufbau**

- Grundmodell (H) mit
- Anpreßwalzen
- Einlauftisch
- Handkurbel

**Ausbauelemente**

- Anschlagwinkel auf Einlauftisch
- Motorantrieb mit Haupt- und Fußschalter
- Grundelement für Rollenabwicklung und -aufwicklung der Schutzabdeckung inkl. obere Abwickelachse und Auslauftisch
- obere Aufwickelachse
- untere Abwickelachse
- untere Aufwickelachse

**Technical data:**

Laminating width	650 mm
Working width	655 mm
Press-roll distance	0 - 35 mm
Running speed	1,8 m/min. (mod.M)
Pressure	approx. 70 kg/cm <sup>2</sup>
Drive (electric motor)	220 V / one phase
Protection device	by reduced torsional moment of the drive (mod. M)

**Set up:**

- Basic model (H) with
- press-rolls
- inlet-table
- crank for manual operation

**Additional equipment:**

- positioning angle for inlet-table
- motor with main- and foot-switch
- basic element for unwinding device and take up roll for protecting paper, incl. upper unwinding device and outlet-table
- upper take up axle
- lower unwinding axle
- lower take up axle

**Caractéristiques techniques:**

Largeur de travail maximum	650 mm
Largeur de passage	655 mm
Ecartement des cylindres	0 - 35 mm
Vitesse de défilement	1,8 m/mn (modèle M)
Pression	environ 70 kg/cm <sup>2</sup>
Courant	220 V monophasé
Sécurité	Par vitesse réduite du moteur (modèle M)

**Conception**

- Modèle de base H-manuel avec
- cylindres
- table d'entrée
- manivelle

**Options**

- Equerre mobile sur table d'entrée
- Moteur avec contacteur et pédale
- Module support pour axes porte film et réenrouleur livré avec un axe porte film et table de sortie
- Axe réenrouleur supérieur
- Axe porte film inférieur
- Axe réenrouleur inférieur

**Technische gegevens:**

Max. werkbreedte	650 mm
Max. doorvoerbreedte	655 mm
Doorvoerhoogte	0 - 35 mm
Doorvoersnelheid	1,8 m/min. (model M)
Walsdruk	tot ca. 70 kg/cm <sup>2</sup>
Aandrijving	220 Volt / éénfasig
Beveiliging	stopt automatisch bij overdruk (model M)

**Opbouw:**

- Standaardmodel (H) met:
- drukwalsen
- aanvoerblad
- handzwengel

**Aanbouwelementen:**

- verstelbare aanslag op aanvoerblad
- motoraandrijving met schakelaar en voetpedaal
- standaardelement voor het afwikkelen van de rol en het opwikkelen van het afdekpapier inkl. bovenste afwickelas en afvoerblad
- bovenste opwickelas
- onderste afwickelas
- onderste opwickelas

**DEUTSCHLAND**

**HANS NIESCHEN**  
GmbH & Co. KG  
Postfach 1390  
D-5062 Bäckeburg  
T 05722-3045 F 0972568

**BENELUX**

**HANS NIESCHEN**  
GmbH & Co. KG  
Postbus 7 B. P. 9870  
Mijkenbroek 15 4802 JHR Breda  
T (076) - 418040 F 54306

**FRANCE**

**FILMOLUX S. A.**  
20-22 Rue Hégésippe Moreau  
F-75018 Paris  
T 292 10 23 F 29 08 18

**ÖSTERREICH**

**HANS NIESCHEN**  
Hornauer Hauptstraße 28  
A-1170 Wien  
T 423480



## **Klein-Kaschiergeräte**

**K 300 / K 600**

---

BETRIEBSANLEITUNG

### Inhaltsverzeichnis

1. Beschreibung
2. Technische Daten
3. Einstellung
4. Wartung

## **Cold Laminating**

**Machines K 300 / K 600**

---

OPERATION INSTRUCTIONS

### Contents

1. Details
2. Technical data
3. Adjustments
4. Maintenance

## **Machines à laminer, plastifier et adhésiver**

**K 300 / K 600**

---

MODE D'EMPLOI

### Index

1. Descriptif
2. Caractéristiques techniques
3. Réglages
4. Entretien

## **Cacheerapparaten**

**K 300 / K 600**

---

HANDLEIDING

### Inhoudsopgave

1. Omschrijving
2. Technische gegevens
3. Instelling
4. Onderhoud

## 1. Beschreibung

Die Klein-Kaschiergeräte K 300 / K 600 werden zur Verarbeitung von selbstklebenden Folien, Doppelhaftklebern und zum Aufziehen von Fotos, Posters etc. verwendet. Sie bestehen aus

### Grundmodell mit Handantrieb

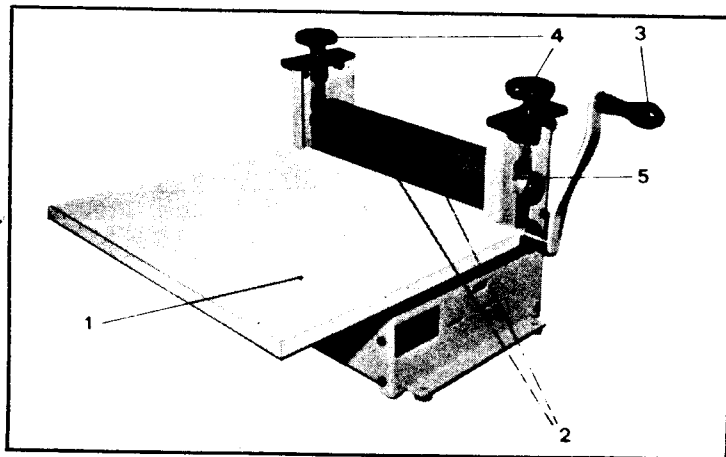
1. Einlauftisch
2. Presswalzen
3. Handkurbel
4. Durchlasshöhe- u. Druckeinstellung
5. Skala für Durchlasshöhe-Einstellung

## 1. Details

The Cold Laminating Machines K 300 / K 600 are suitable for the application of NESCHEN Self-adhesive films, transfer adhesive as well as mounting photographs, posters, etc. The different parts are

### Base model (hand-operated)

1. supply table
2. pressure rollers
3. crank handle
4. handwheel for adjusting pressure and roller gap
5. scale showing height of roller gap



## 1. Descriptif

Les machines à laminer, plastifier et adhésiver K 300 / 600 sont destinées à la mise en oeuvre des films adhésifs, d'adhésifs transferts et double-face et au montage de documents, photographies, posters, etc.

### Modele de base manuel

1. table d'entrée
2. cylindres de pression
3. manivelle
4. écartement et pression des cylindres
5. graduation d'écartement des cylindres

## 1. Omschrijving

De cacheerapparaten K 300 / K 600 zijn voor de verwerking van éénzijdig klevende folies en / of tweezijdig klevende materialen. Zij bestaan uit

### Basismodel

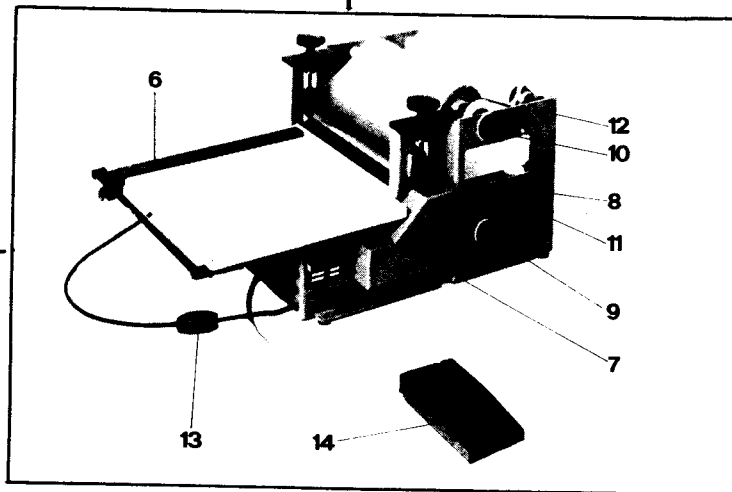
1. aanvoerblad
2. aandrukwalzen
3. handzwengel
4. doorvoerhoogte- en drukregeling
5. doorvoer-schaalverdeling

### Zusatzelemente

6. Anschlagwinkel
7. Motorantrieb
8. Grundelement für Rollenab- u. Schutzpapieraufwicklung mit Auslauftisch und oberer Abwickelachse
9. untere Abwickelachse
10. obere Abwickelachse
11. untere Aufwickelachse
12. obere Aufwickelachse
13. Hauptschalter
14. Fuss-Schalter

### Additional parts

6. guide arm
7. motor
8. roll-off-set with table for outlet and upper wind-off roller
9. lower wind-off roller
10. upper wind-off roller
11. lower batching roller
12. upper batching roller
13. main switch
14. foot switch



### Elements optionnels

6. equerre
7. moteur
8. module pour axes dérouleurs de films et ré-enrouleurs de papier protecteur avec table de sortie et axe dérouleur supérieur
9. axe dérouleur inférieur
10. axe dérouleur supérieur
11. axe ré-enrouleur inférieur
12. axe ré-enrouleur supérieur
13. interrupteur principal
14. contacteur à pédale

### Basismodel aangebouwd

6. verstelbare aanslag
7. motor aandrijving
8. grondelement, voor rollenaf- en schutpapieropwikkeling, met bijbehorend afvoerblad en bovenste afwikkelas
9. onderste afwikkelas
10. bovenste afwikkelas
11. onderste opwikkelas
12. bovenste opwikkelas
13. hoofdschakelaar
14. voetschakelaar

<u>2. Technische Daten</u>	<u>K 300</u>	<u>K 600</u>
Max. Arbeitsbreite	350 mm	650 mm
Durchlasshöhe	40 mm	40 mm
Rollenkerndurchmesser	38 - 50 mm 64 - 80 mm	
Max. Rollen- Aussendurchmesser	150 mm	
Presswalzen	-untere Walze angetrieben -obere Walze mit verstellbarem Federdruck	
 <u>Motorausführung</u>		
Elektromotor	220 V / 1-phasig	
Durchlaufgeschwindigkeit	ca. 1,7 m/min	
 <u>Zubehör</u>		
zu Motormodell und Rollenauf- und Abwicklung	1 Imbusschlüssel 3 mm 1 Imbusschlüssel 4 mm 1 Gabelschlüssel SW 10	
zu Rollenauf- und Abwicklung	1 Ersatzriemen pro Aufwickelwalze	

<u>2. Technical data</u>	<u>K 300</u>	<u>K 600</u>
maximum working width	350 mm	650 mm
roller gap	40 mm	40 mm
core-diameter of rolls used	38 - 50 mm 64 - 80 mm	
max. roll diameter	150 mm	
pressure rollers	-driven lower roller -upper roller with adjustable spring pressure	
 <u>Drive</u>		
electromotor	220 V / monophas	
speed	approx. 1,7 m/min.	
 <u>Attachments</u>		
to motorized model and roll-off set	1 hollow srew 3 mm 1 hollow srew 4 mm 1 fork wrench sw 10	
to roll-off set	1 spare belt for each batching roller	

<u>2. Caractéristiques techniques</u>	<u>K 300</u>	<u>K 600</u>
Largeur maxi de travail	350 mm	650 mm
Ecartement maxi des cylindres	40 mm	40 mm
Diamètre intérieur des mandrins utilisables	38 - 50 mm 64 - 80 mm	
Diamètre extérieur maxi des bobines matières	150 mm	
Cylindres de pression	-inférieur entraîné -supérieur réglable par pression de ressort	
<u>Moteur</u>		
Electrique	monophasé 220 volts	
Vitesse	1,7 m/minute	
<u>Accessoires</u>		
Modèle électrique	1 clé allen 3 mm 1 clé allen 4 mm 1 clé plate SW 10	
Dérouleuse et ré-enrouleur	1 jeu de courroies d'entraînement	

<u>2. Technische gegevens</u>	<u>K 300</u>	<u>K 600</u>
max. werkbreedte	350 mm	650 mm
doorvoerhoogte	40 mm	40 mm
kerndiameter	38 tot 50 mm 64 tot 80 mm	
max. roldiameter	150 mm	
presswals en	-onderste wals aangedreven -bovenste wals met regelbare veerdruk	
<u>Elektrische uitvoering</u>		
elektromotor	220 V / 1-polig	
doorvoersnelheid	ca. 1,7 mtr/min.	
<u>Aanbouw-toebhoren</u>		
voor motor en rolop- en/of afwikkeling	1 inbussleutel 3 mm 1 inbussleutel 4 mm 1 steeksleutel SW 10 1 reserve-riem per opwikkelas	

### 3. Einstellungen

#### 3.1. Höhen- und Druckeinstellung

Der Walzendurchlass wird analog der Stärke des zu beschichtenden Materials mittels der Handräder (4) und der Skalen beidseitig eingestellt.

Durch Verringern des Durchlasses um ca. 0.5 mm gegenüber der Stärke des zu beschichtenden Materials erreicht man die notwendige Federspannung für optimale Druckverhältnisse.

Beim Beschichten von dünnen Materialien (Fotos, Papiere etc.) werden die Walzen zusammengestellt. Durch gleichmäßiges, beidseitiges Weiterdrehen der Handräder (4) wird die notwendige Federvorspannung für den gewünschten Druck erreicht.

### 3. Adjustments

#### 3.1. Adjustment of pressure and roller gap

The gap between the two pressure rollers can be adjusted according to the thickness of the material used for lamination by twisting the hand wheels (4) (scales on both sides)

To achieve an optimum pressure, the distance between the rollers should be 0.5 mm less than the thickness of the material used for lamination.

When laminating thin materials such as paper or photographs twist hand wheels (4) until rollers touch each other, then continue twisting till required pressure is achieved.

### 3. Réglages

#### 3.1. Ecartement et pression des cylindres

L'écartement des cylindres est réglé en fonction de l'épaisseur du matériau à laminer, à l'aide des volants de serrage et des échelles graduées. En diminuant l'écartement des cylindres de 0.5 mm par rapport à l'épaisseur du matériau ou panneau à laminer, l'on obtient les meilleures conditions de pression.

Pour la lamination de documents minces (photographies, papier etc.) les deux cylindres sont mis en contact. La meilleure pression est obtenue par serrage simultané des deux volants (4) jusqu'à tension des ressorts de pression.

### 3. Instelling

#### 3.1. Hoogte- en drukinstelling

De walsdruk wordt bepaald door de aard en de totaaldikte van de te verwerken materialen.

Een overdruk van 0.5 mm, verkregen middels de stelknoppen (4) en afleesbaar op de schaalverdelingen, levert veelal een optimaal resultaat.

De juiste drukverhouding kan proefondervindelijk worden vastgesteld.

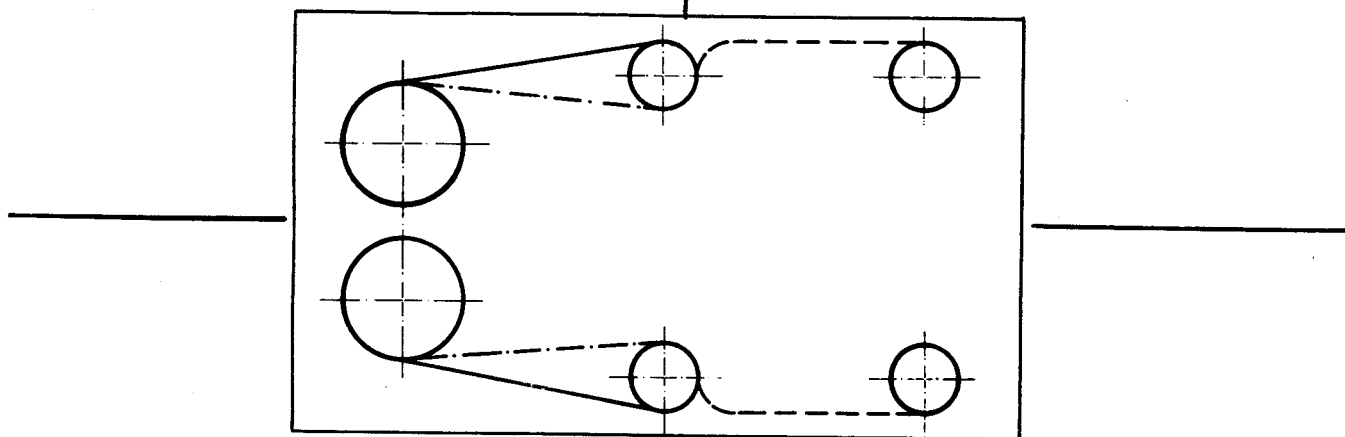


3.2. Einzugsschema

- Doppelhaftkleber
- selbstklebende Folien
- Schutzabdeckung

3.2. Scheme for drawing-in

- transfer adhesive
- self-adhesive films
- backing material



3.2. Schéma de montage des films et adhésifs

- adhésif transfert double face
- films adhésifs
- papier de protection des films

3.2. Rolinvoerschema

- tweezijdig klevende materialen
- eenzijdig klevende folies
- afdekpapier

### 3.3. Einziehen der Bahnen

Die Presswalzen werden voneinander gestellt. Die Rollen werden entsprechend dem Einzugschema auf den Abwickelachsen montiert. Auf den Aufwickelachsen wird sofern notwendig ein leerer Kern eingespannt.

Es empfiehlt sich vorerst die untere Bahn einzuziehen. Zu diesem Zwecke wird der Einlauftisch entfernt.

- Der Anfang der unteren Bahn wird durch den Walzenspalt gezogen und auf dem Auslauftisch angeklebt.
- Die obere Bahn wird beidseitig an der oberen Presswalze befestigt und durch Drehen der Walze durchgezogen.
- Das Abdeckpapier, sofern vorhanden, wird ein Stück weit abgetrennt und nach Einzugschema auf dem montierten Kern der Aufwicklung befestigt.
- Höhen- und Druckeinstellung gem. Pkt. 3.1.
- Einlauftisch wird eingesetzt.
- Das zu beschichtende Material wird an die Presswalze angestossen, damit die Bahnen fixiert sind.
- Die Verklebungen auf oberer Walze und Auslauftisch werden gelöst.
- Der Anschlagwinkel wird eingerichtet.
- Um Faltenbildung zu vermeiden, können die Abwickelachsen durch Drehen der Rändelmutter gebremst werden.

---

### 3.3. Drawing-in of self-adhesive films and transfer-adhesive

The gap between the two pressure rollers should be 25 - 30 mm. Place rolls of films or transfer adhesive onto wind-off rollers according to scheme for drawing in. If necessary, an empty core may be put onto batching rollers.

First draw in lower film - remove supply table.

- guide lower film through gap and fasten to table for outlet.
- fasten upper film to upper pressure roller and draw in by twisting the roller.
- the backing paper is removed a little from the film and fastened to the core on the batching roller.
- adjust pressure acc. 3.1.
- put supply table into position
- press material for lamination to both rollers in order to fix the self-adhesive films.
- remove tapes from upper pressure roller and table for outlet.
- set up guide arm
- to avoid any wrinkling of the films, the wind-off rollers can be braked by tightening the knurl-head screws.

### 3.3. Passage des films

Desserrer les cylindres de pression et monter les bobines de films sur les axes dérouleurs selon schéma.

Monter un mandrin vide sur les axes ré-enrouleurs.

Il est conseillé de commencer l'opération par l'axe inférieur; à cet effet retirer la table d'entrée.

- Passer le film inférieur entre les cylindres et le fixer sur la table de sortie.
- Le film supérieur est fixé des deux côtés sur le cylindre supérieur et entraîné par un mouvement manuel du cylindre pour sa mise en place.
- Séparer le papier de protection du film sur une certaine longueur et fixer selon schéma sur le mandrin du ré-enrouleur.
- Régler écartement et pression des cylindres (cf. 3.1.)
- Remettre la table d'entrée en place.
- Pousser à fond contre les cylindres le panneau ou document à laminer afin de maintenir les films.
- Retirer les films de leurs fixations sur la table de sortie et cylindre supérieure.
- Monter l'équerre
- Pour éviter la formation de plis, serrer les vis de freinage des axes dérouleurs.

---

### 3.3. Inleggen

De drukwalsen dienen evenwijdig omhoog gedraaid te zijn. Aan- en afvoerblad wegnemen. Volgens rolinvoerschema zelfklevend materiaal monteren.

Aanbevolen werkwijze:

- eerst de onderfoliebaan tussen de walsopening doorvoeren en tijdelijk vastkleven op weer geplaatst afvoerblad.
- nu bovenfoliebaan parallel inhangen en aan bovenwals tijdelijk vastkleven; wals iets doordraaien.
- schutpapier - voor zover van toepassing - verwijderen en volgens schema vastkleven op kern.
- aanvoerblad herplaatsen.
- hoogte- en drukinstelling volgens punt 3.1.
- alvorens foliebanen van bovenwals en afvoerblad los te maken, te bekleven materiaal 1 à 2 cm tussen walsen doorvoeren.
- eventueel de verstelbare aanslag instellen.
- bij vouwvorming stelmoeren van de afwikkelassen (= rechts) iets aandtaaien, de assen worden zo geremd. (Na langduriger machine-stilstand niet-afgedekt foliemateriaal b.v.k. onverwerkt doorvoeren.)

#### 4. Wartung

- 4.1. ACHTUNG Wenn die Maschine nicht benutzt wird, müssen die Presswalzen, um eine Verformung zu vermeiden, voneinander gestellt werden.
- 4.2. Die mit Naturkautschuk vulkanisierten Walzen können mit Seifenwasser oder einem, den Gummi nicht angreifenden Spezialreinigungsmittel gesäubert werden.
- 4.3. Im übrigen bedarf die Maschine keiner speziellen Wartung.

#### 4. Maintenance

- 4.1. ATTENTION Always release roller pressure when the machine is not used, to avoid deformation.
- 4.2. The rollers are vulcanized with natural caoutchouc and can be cleaned with soapsuds or other cleaning agents which do not affect rubber.
- 4.3. Beside this no special maintenance is necessary.

#### 4. Entretien

- 4.1. ATTENTION lorsque la machine n'est pas en service, les cylindres doivent être mis hors pression afin d'éviter les déformations.
- 4.2. Les cylindres étant garnis de caoutchouc naturel vulcanisé peuvent être nettoyés à l'aide d'eau savonneuse ou tout autre produit nettoyant n'attaquant pas le caoutchouc.
- 4.3. La machine ne nécessite aucun autre entretien.

#### 4. Onderhoud

- 4.1. OPGELET Wanneer de machine niet gebruikt wordt, drukwalsen ontspannen om vervorming te voorkomen.
- 4.2. De gevulkaniseerde walsen kunnen met zeepsop of een niertrubberaantastend schoonmaakmiddel gereinigd worden.
- 4.3. Het apparaat heeft verder geen speciaal onderhoud nodig.

## Some alternatives for lettering

Since not everywhere the self-adhesive lettering system of Mecanorma will be available, or too expensive, use could be made of lettering templates. These are available with a great number of different types and heights of lettering. On one template the whole alphabet is given. A well-known brand is Linex (Denmark).

pen size	height mm	ISO 3098 vertical	ISO 3098 vertical no.	ISO 3098 sloping	ISO 3098 sloping no.
0.18	1,8	<i>LINEX International Standard Letter</i>	<b>7318</b>	<i>LINEX International Standard Letter</i>	<b>7418</b>
0,25	2,5	LINEX International Stand	<b>7325</b>	<i>LINEX International Stand</i>	<b>7425</b>
0,35	3,5	LINEX Internationa	<b>7335</b>	<i>LINEX International</i>	<b>7435</b>
0,5	5	LINEX Intern	<b>7350</b>	<i>LINEX Intern</i>	<b>7450</b>
0,7	7	LINEX Int	<b>7370</b>	<i>LINEX Int</i>	<b>7470</b>
1,0	10	LINEX	<b>7310</b>	<i>LINEX</i>	<b>7410</b>

### Sloping ISO Lettering ISO 3098

New international sloping standard lettering style.  
Meets microfilming requirements.  
Only for use with a technical pen according to Micro-norm  $\overline{m}$   
Size progression in steps of  $\sqrt{2}$ .  
Colour coded size of stencil and pen above.  
Material: 1 mm green-transparent butyrate with anodized aluminium rails.  
Supplied in wallet.

### Standard Lettering Vertical Style DIN 17

For technical drawings, meets microfilming requirements, only for use with a technical pen according to micronorm.  
Colour code above.  
Material: 1 mm green-transparent butyrate with anodized aluminium rails.  
Supplied in wallet.

### Standard Lettering Vertical Style DS 2123

Extended legible style.  
Only for use with micronorm technical pen.  
According to Danish Standard DS 2123.  
Material: 1 mm green-transparent butyrate with anodized aluminium rails.  
Supplied in wallet.

### Vertical ISO Lettering ISO 3098

New international vertical standard lettering style.  
Meets microfilming requirements.  
Only for use with a technical pen according to Micro-norm  $\overline{m}$   
Size progression in steps of  $\sqrt{2}$ .  
Colour coded size of stencil and pen above.  
Material: 1 mm green-transparent butyrate with anodized aluminium rails.  
Supplied in wallet.

There are also, usually thin metal, lettering templates with only one letter. These are suitable when paint is used. All letters of the word are put against each other, the word can then be painted with a brush or with a paint-spray. This method is not frequently employed anymore, it is quite cumbersome.

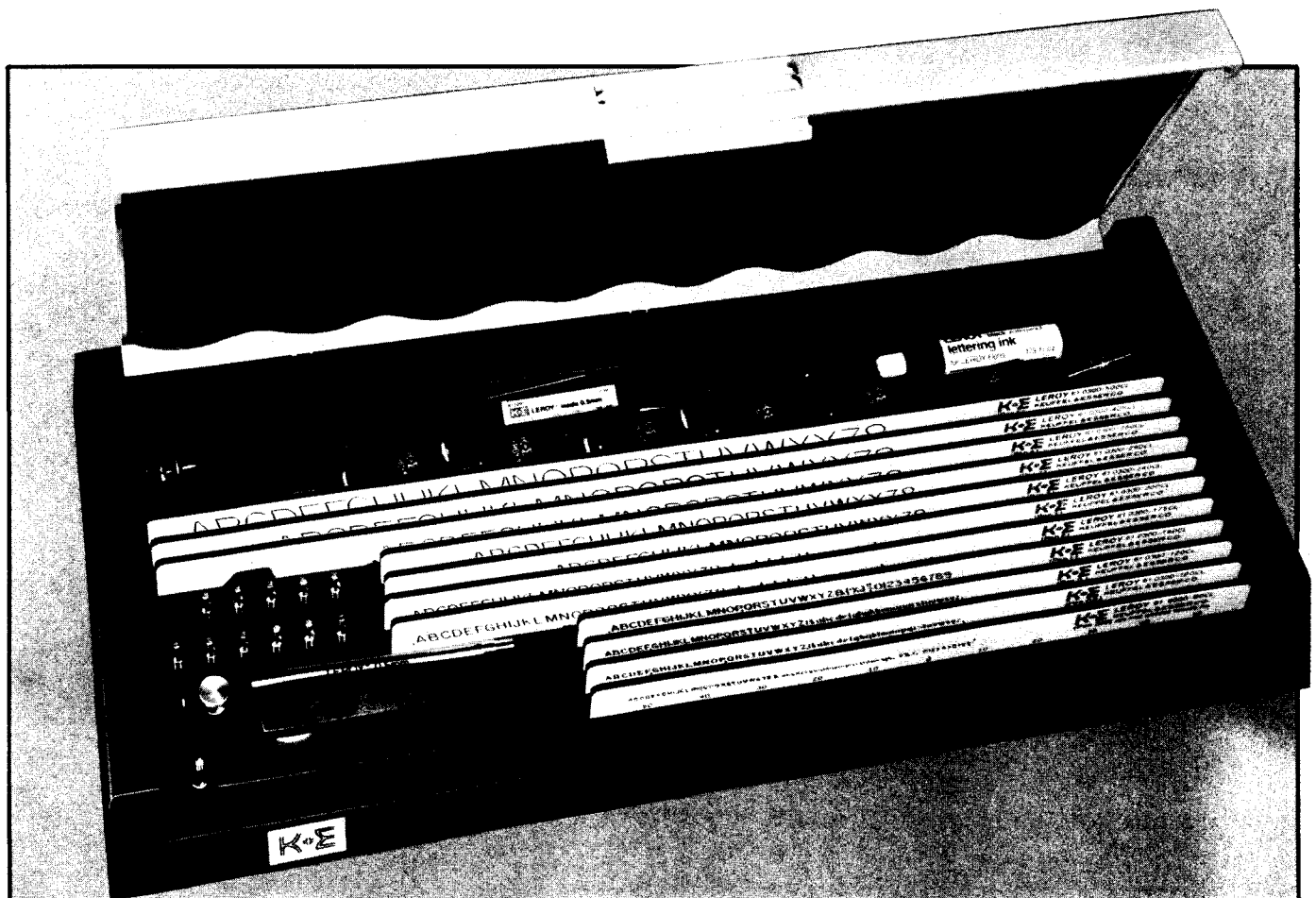
# ISIRIC

### Another alternative

Another alternative is the lettering equipment of Leroy. It is handy, always ready for use, but more expensive than the Linex system.

Leroy is also using a template, but instead of direct copying in the case of Linex, it employs a scribe with pen.

As in the case of Linex, many different sizes and styles of lettering are available.



One of the draftsman's most useful tools is the lettering set, with which perfect lettering can be made easily and rapidly. Of all lettering equipment, the brand with the broadest scope is LEROY Lettering and Symbol Drawing Equipment.

LEROY is preferred because it is the lettering equipment that is most useful, highest in quality, and most efficient to use. LEROY gives you:

**Utility** — A great variety of lettering styles, alphabets, and symbols are available in a wide range of sizes and thicknesses.

**Quality** — LEROY products reflect proven K&E craftsmanship and quality of materials. LEROY Lettering and Symbol Drawing Equipment is precision engineered in every detail. And your LEROY equipment will give you years of steady service.

**Convenience** — Designed by K&E for utmost simplicity of operation, LEROY lettering needs no special skill or technique to produce perfect neatness and uniformity in the work.

## LEROY Lettering is as simple as this...

You need only three basic items. This is how to use them.

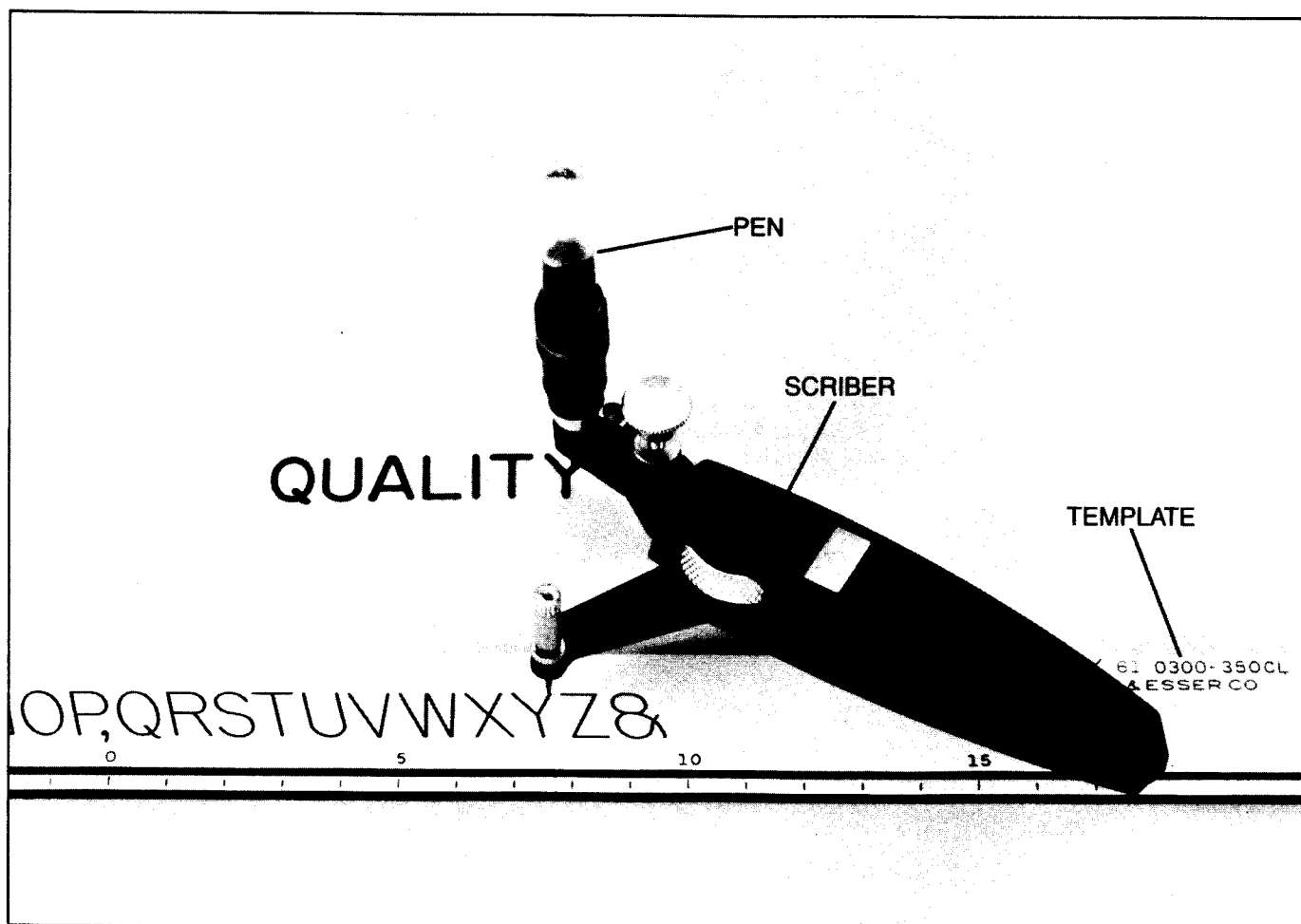
**1. LEROY Template** — Choose the template with the size and style of lettering you want. (There are many styles and sizes of alphabets, as well as graphical symbols. Also, templates can be made specially for you to your own design.) Lay it along your straightedge.

**2. LEROY Pen or Pencil**

**LEROY Pen** — Choose the type of pen (Reservoir or Standard) with the width that best suits the job you are doing. Set the pen in the socket in the upper arm of the scriber.

**LEROY Pencil** — For pencil lettering work, you can use either the LEROY 0.5mm Pencil or the LEROY Lead Clutch that holds any regular draftsman's lead. Both work with all LEROY scribers.

**3. LEROY Scriber** — Set the tail pin of the scriber in the straight guide groove of the template. With the tracer pin of the scriber simply trace the engraved letters on the template. The pen reproduces the letter or symbol in full view, above the template.



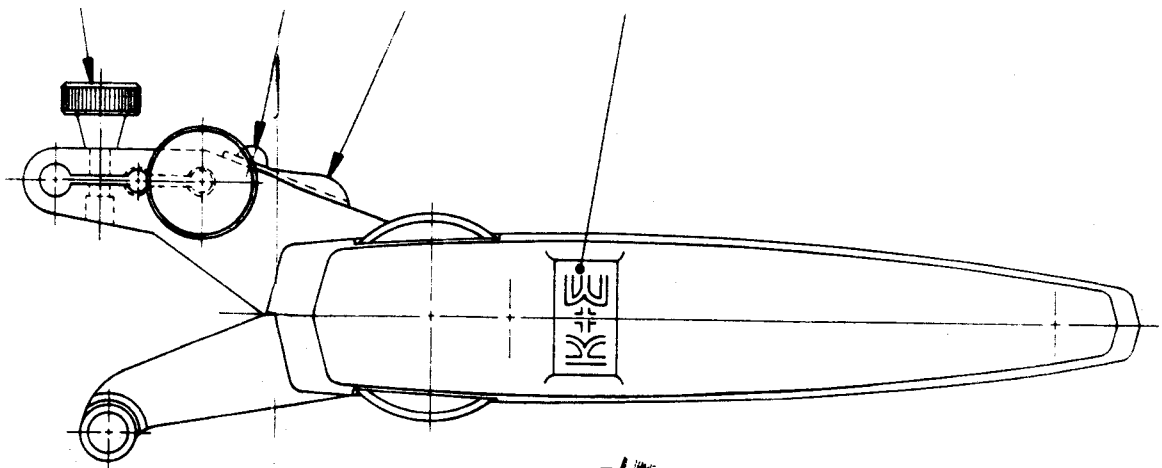
# LEROY Standard Lettering Templates

## RECOMMENDED TEMPLATE & PEN COMBINATIONS IN ACTUAL SIZE

The chart shows the wide range of LEROY lettering effects that can be produced by combining various LEROY templates and pens.

\*Indicates the combination of template and pen recommended for a good proportion between the thickness of stroke and the size of letter.

TEMPLATE SIZE	PEN SIZE												
	0000	000	00	0	1	2	3	4	5	6	7	8	
50	A*												
60	A*	A	B	C									
80	A	A*	B	C									
100		A	A*	B	C	D							
120		A	B	C*	D	E							
140		A	B	C	D*	E	F						
175		A	B	C	D	E*	F	G					
200		A	B	C	D	E	F*	G	H				
240		A	B	C	D	E	F*	G	H				
290			B	C	D	E	F	G*	H	K			
350			B	C	D	E	F	G*	H	K			
425			B	C	D	E	F	G	H	K	L		
500			B	C	D	E	F	G	H	K	L	M	

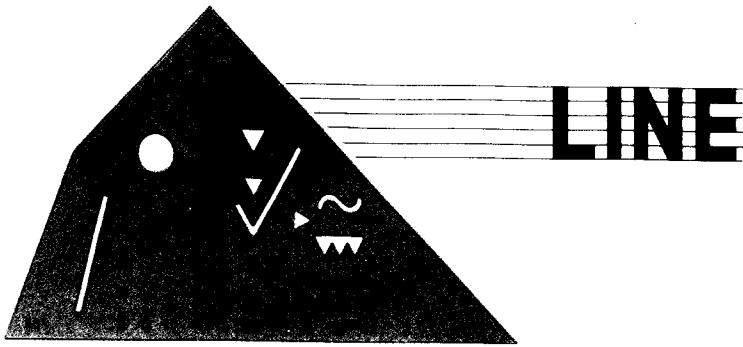


QUALITY

ABCDEFGHIJKLMNORSTUVWXYZ8





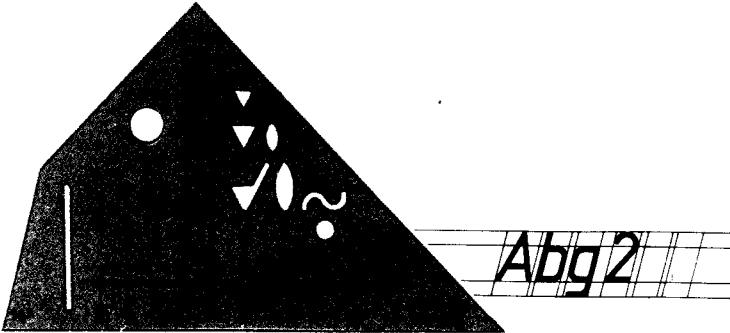


### 1001 Lettering Set Square

For hatching and drawing guidelines for lettering (metric).

With a pencil in one of the holes a line is drawn, sliding the set square along a ruler. The three rows of lines in centre are for hatching. The four-hole-groups give guidelines for letters in the stated heights 2-15 mm, height of small letters is  $\frac{2}{3}$  of capitals. Inclinations 68° and 75°.

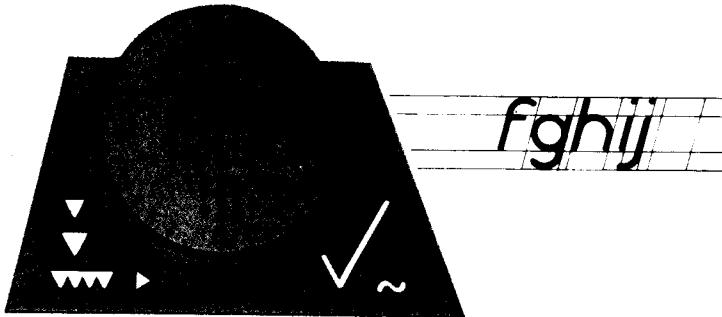
Material: 1,5 mm (0.06") green-transparent, superflexible polycarbonate.  
130 x 78 mm



### 1002 Lettering Set Square

For hatching and ruling. Used like 1001, but is divided according to international lettering heights: 1,8 - 2,5 - 3,5 - 5 - 7 - 10 - 14 and 20 mm. Inclination 75°.

Material: 1,5 mm (0.06") green-transparent, superflexible polycarbonate.  
130 x 78 mm

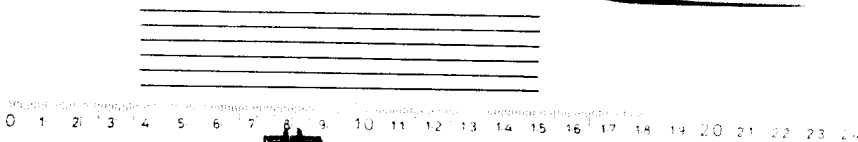


### 1007 Parallelograph

For hatching and lettering (inch and metric).

With a pencil in one of the holes in the disc a line is drawn sliding the parallelograph along a ruler. The distance of the parallel lines can be adjusted continually by turning the round disc. The holes in centre are for hatching, the other holes are for guidelines for lettering. Height of small characters is on the left  $\frac{3}{5}$  and on the right  $\frac{2}{3}$  of capitals. Inclination 68° and 75°.

Material: 2 mm (0.08") green-transparent, superflexible polycarbonate.  
117 x 75 mm



### Automatic Line Spacer

For hatching and drawing guidelines for lettering.

Unlimited hatching without moving the apparatus from the paper.

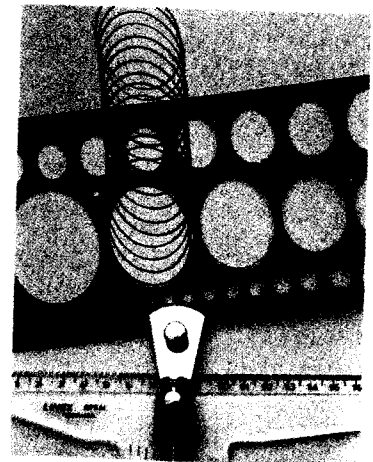
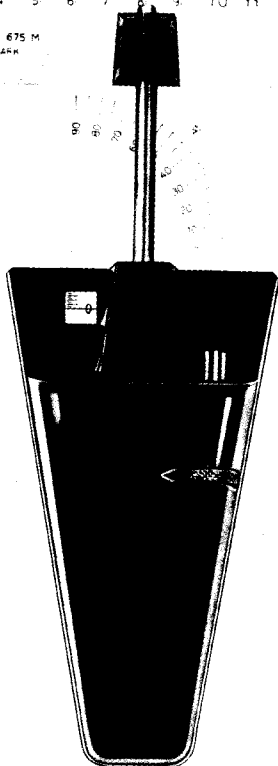
The ruler moves at pressure on button.

Lies firmly when in use (rubber knobs).

Any interval between 0 and 5.5 mm (approx.  $\frac{7}{32}$ ") can be obtained.

Adjusting scale with magnifier in  $\frac{1}{2}$  mm (675 M) and ( $\frac{1}{32}$ ") (675 I).

Material: housing made of coloured dunirit  
ruler of crystal-clear acrylic with tracing edge and division  
mechanism of stainless steel and plated brass



### 676 Curve-holder for Line Spacer

To hold curve rulers or templates for special hatching.

Material: plated brass.

### Construction of display panels

An important aspect of the exhibition is the construction of the frames panels, etc. The choice of the method selected for display depends on: - the space available

- lighting possibilities

and of course, the financial means.

ISM has invested, as a specialist institution in this field, quite a large amount of money in the construction of frames and panels and, especially, the artificial illumination of the monoliths.

As a guide, it may help others in planning and executing an adaption ed version.

### The frames

The standing parts of the frame are made of round steel pipes of 48 mm diameter, in the form as shown on drawing in figure 10 . and on fotograph 2

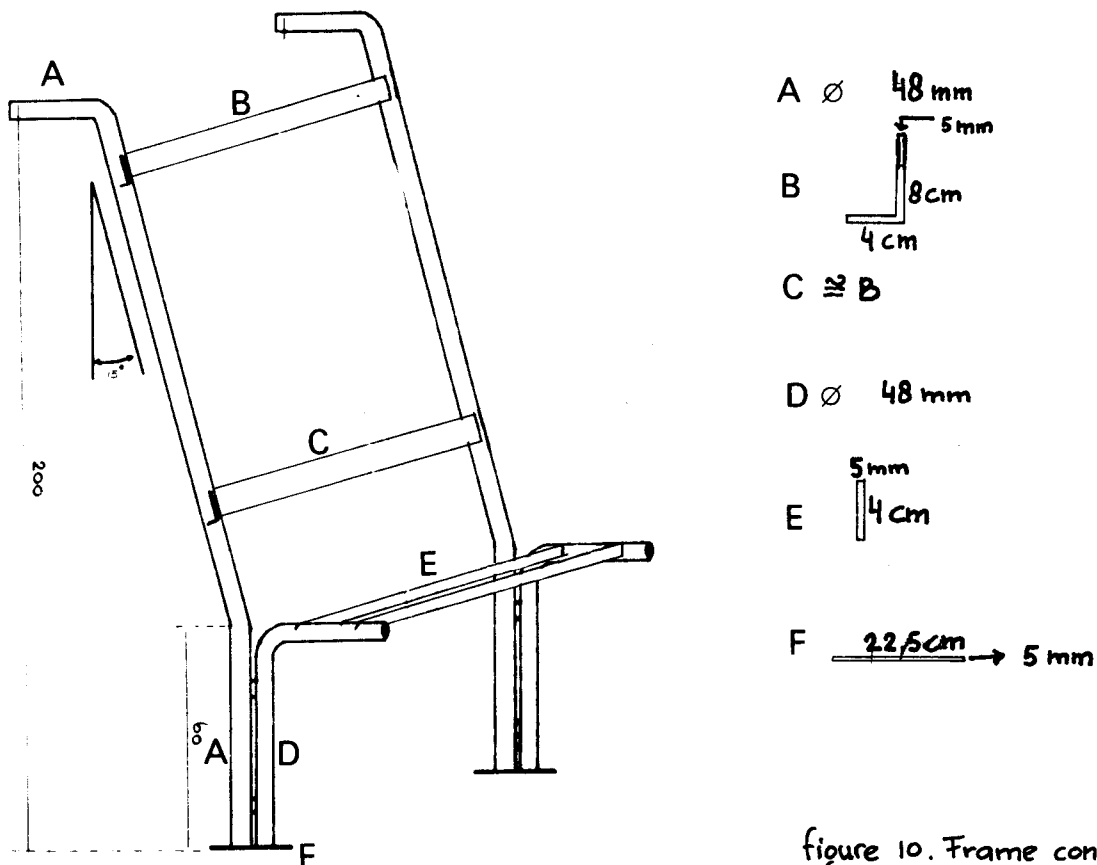


figure 10. Frame construction

The angle of  $15^{\circ}$  has been found practical to see the soil better, but this depends fully on the illumination. In our case , this is artificial. The angle depends on the wish to see the soil with the least possible shade and as much as possible in the natural position.

The individual wooden panels are hanging with hooks on the upper (B) and supported by the lower (C).

To allow the placement of wooden boxes for the soil information sheets and as well preventing damage of the monoliths, the support D and E have been made, also steel. You even can see it as a natural and physical railing for reflex touching the profiles.

For fixation to the ground, a thin steel plate with screw holes is attached to A and D.

Such a plate can also be attached to the top of A for fixing to a wall

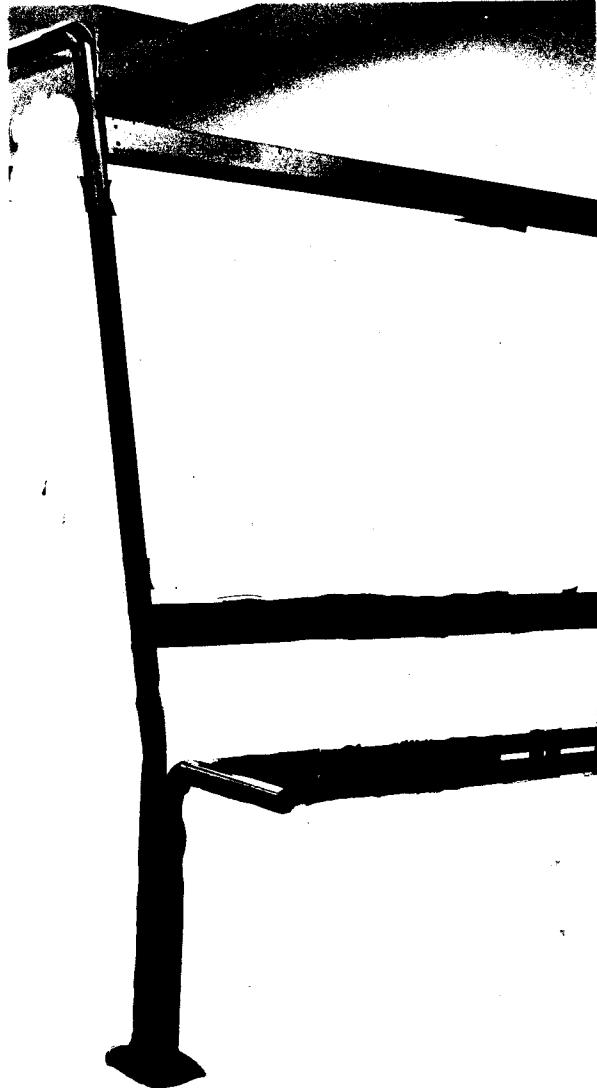


Photo. 2.

### The panels

The panels are made of plywood of 18 mm thickness.

The following panels are available for different purposes:

photographs and texts of 30 x 40 cm, soil monoliths of different sizes, the adjustable ruler, and the micromorphological photographs and texts of 15 x 20 cm. (See figure 11. )

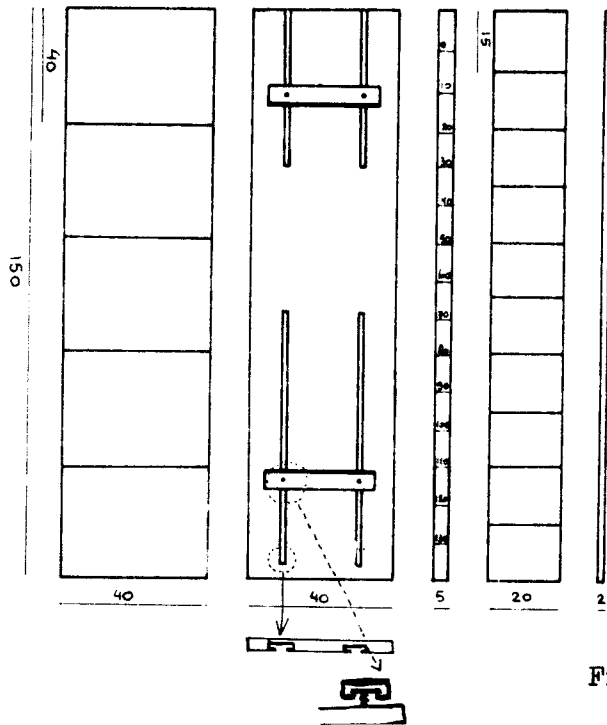


Figure 11. Panels 1 to 4.

All panels are painted non-glossy black, as not to interfere with the colours of the soil, photographs, etc. A grey colour will also suit the purpose.

All large panels are hanging with two hooks on the upper (B in fig. 10) and are supported by the lower (C in fig. 10)

The ruler has one hook only.

The hooks used for hanging the panel of the soil monolith should well screwed onto the panel. (see fig. 12)

If needed, two hooks can also be fixed on the lower side to fit C.

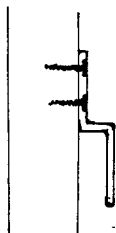


figure. 12 The construction of the hook.

The panels for the photographs

To be able to insert photographs which are laminated with non-glossy plastic film and fixed onto polystyrene, aluminium strips have been inserted and glued into the wood of the panel. as shown in figure 13 .

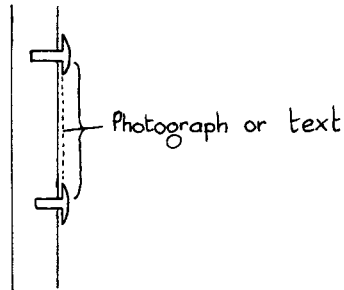
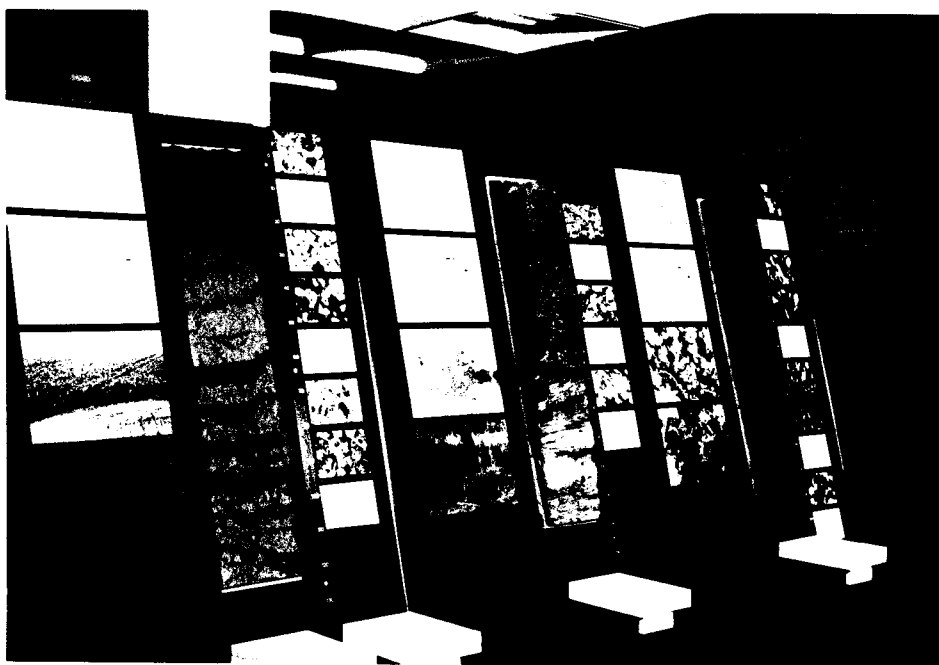


Figure 13.

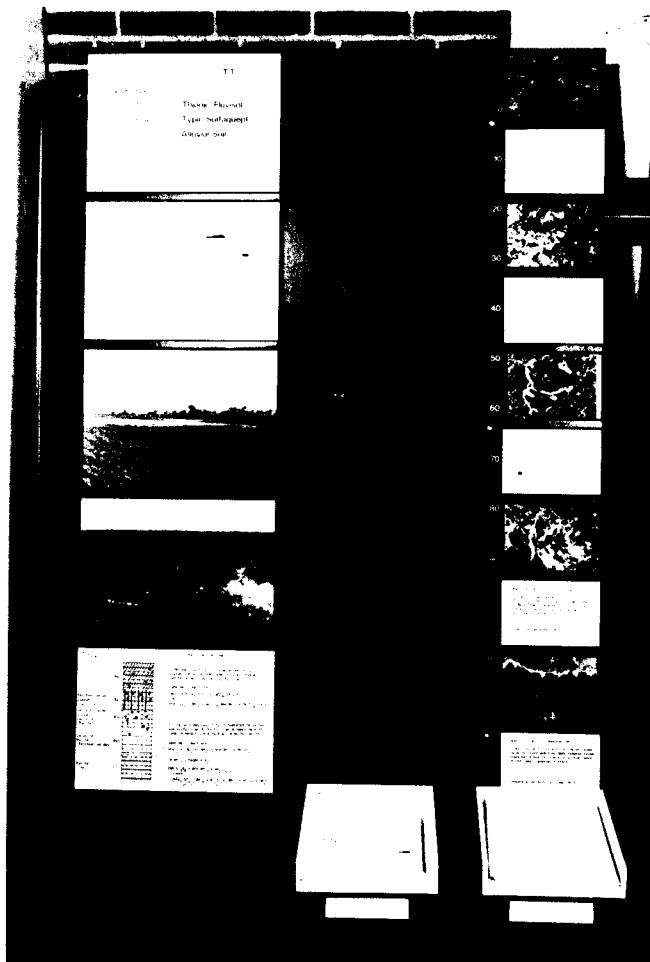
This system has been used for the large photographs and texts of panel 1 as well as on panel 4 for the small micromorphological photographs and texts.

The panel for the monolith

Soil monoliths have no standard length and it has been found necessary to have strong steel supports, sliding into aluminium ..... The supports can be fixed at the distance required for the monolith.



The present exhibition at ISRIC.



## Photography

Exposition and slide collection.

## Exposition

From each profile which is collected photographs are made of:

- landscape
- vegetation and/or land use
- details of profile

Usually, slide films are taken. ISM uses Agfachrome CT 18 (ASA 50/18 DIN).

For obtanaeus photographs of landscape and vegetation/land/use of 30 x 40 cm, which are used in the exhibition hall, internagatives are made from the slides.

Occasionally two cameras are taken into the field, one fot slides and one for negative film.

ISM uses Kodacolor II film (ASA 100/21 DIN).

## Slide collection

The slides taken for the exhibition, can also be used for the slide collection.

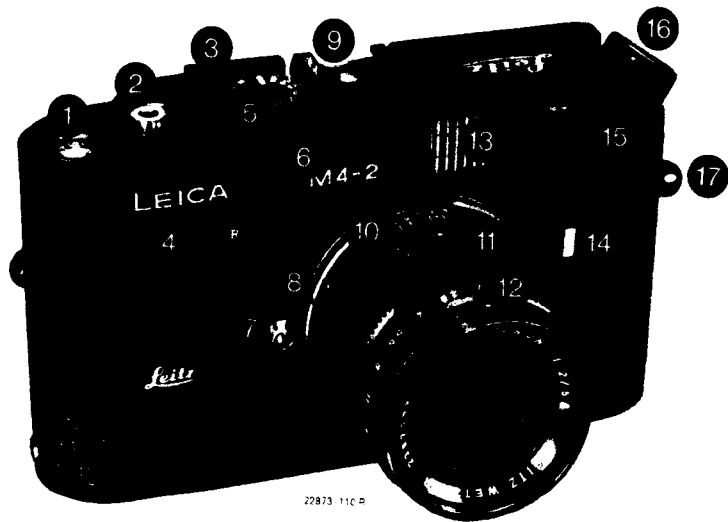
These can be selected for education, but they can also be multiplied for a sales collection.

The cameras used are a Leica CL or a Minolta XG-M. The last two cameras have an automatic exposure meters, which has advantages.

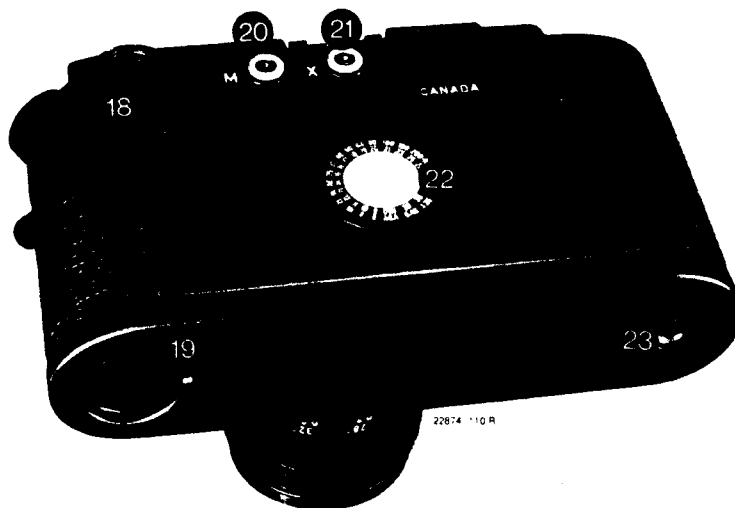
Several lenses can be used, to suit the need and the local possibilities.

Some remarks for making  
photographs  
or  
slides





- |                           |  |
|---------------------------|--|
| 1 Automatic frame counter | 7 Lens bayonet lock                    |
| 2 Shutter release button  | 8 Red locating knob for lens insertion |
| 3 Rapid transport lever   | 9 Accessory shoe with flash contact    |
| 4 Film rewind release     | 10 Depth-of-field scale                |
| 5 Shutter speed dial      | 11 Distance scale                      |
| 6 Rangefinder window      | 12 Aperture scale                      |



- |   |  |
|---|--|
| 13 Window illuminating the bright-line frames | 19 Baseplate lock  |
| 14 Field-of-view selector                     | 20 Contact bush for flashbulbs   |
| 15 Viewfinder field window                    | 21 Contact bush for electronic flash units                               |
| 16 Folding rewind crank                       | 22 Film indicator (takes ball-pen writing) with DIN/ASA comparison scale |
| 17 Carrying-strap eyelets                     | 23 1/4" tripod thread  |
| 18 Measuring-viewfinder eyepiece              |  |



22915-110 R



22916-110 R

### **How to hold the LEICA**

For steady three-point support hold your camera with your right hand, your index finger resting on the release button, your thumb on the rapid-transport lever. The left hand either supports the lens from below, ready for quick refocusing, or it grasps the camera. In addition press the camera against your forehead.

For upright views all you have to do is to rotate the camera through  $90^\circ$ . The position of your hands is the same as for horizontal views.

You can also rotate the camera in the opposite direction, then you must use your thumb to release the shutter.

### **The bright-line measuring viewfinder**

The bright-line measuring viewfinder of the LEICA M 4-2 has been designed to combine the functions of a coupled rangefinder and of a viewfinder of outstanding quality. Whatever you see within the bright frame will appear on your exposed film. The bright-line frame is coupled with the rangefinder so that the parallax — the difference between the lens axis and the viewfinder axis — is automatically compensated.

The measuring field, brighter than the surrounding field, is located in the centre

of the viewfinder field. All the lenses of 21–135mm focal length are coupled with the rangefinder on insertion in the LEICA. When lenses of 35, 50, 90, and 135mm focal length are inserted, the appropriate bright-line frame will automatically appear in the viewfinder image, the 35mm and 135mm frames always together.



Measuring  
field  
of the  
rangefinder

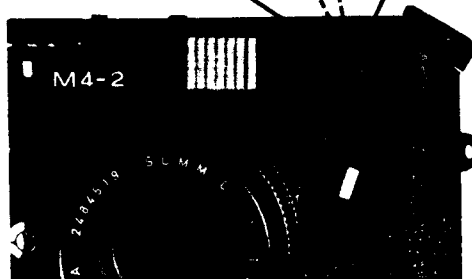
135mm bright-line frame	35mm bright-line frame
-------------------------------	------------------------------



**35mm 135mm**

**The field-of-view selector**

The field-of-view selector (14) functions as a universal viewfinder; it enables the LEICA owner at any time to reflect into the viewfinder field the frames outlining the fields-of-view other than that of the lens that happens to be in the camera. Lever outward: field-of-view frames for 35 and 135mm focal lengths. Lever inward: field-of-view frame for the 90mm focal length. Lever in the middle position: field of view of the 50mm focal length.



22875-110 R



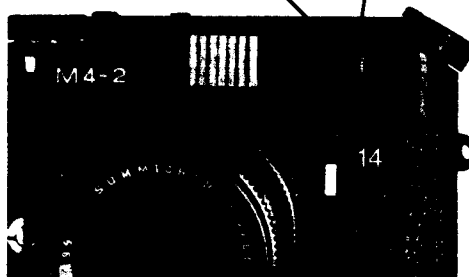
**90mm**



22876-110 R



**50mm**



22877-110 R

**The rangefinder**

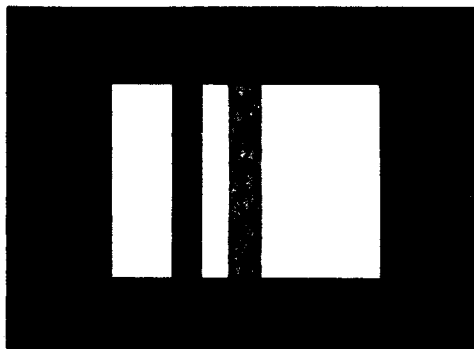
The measuring field of the rangefinder appears in the centre of the viewfinder as a bright, sharply outlined oblong. If you block the large field window (15) of the viewfinder, only the reflected bright-line frame and the measuring field remain visible. Focusing can be carried out according to the coincidence or to the split-image method.

**Coincidence (double image) focusing:** in portraiture, for instance, focus on the highlight in the sitter's eye. Observe the subject through the viewfinder and rotate the lens until the double contours in the measuring field coincide.

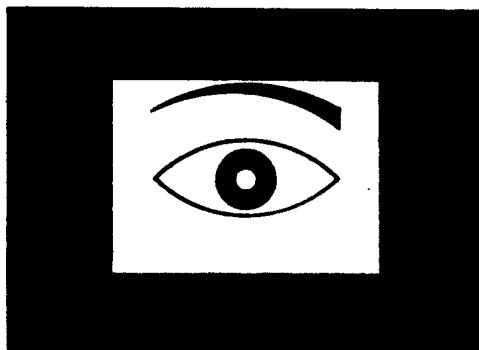
**Split-Image focusing:** Sight an edge or any other clearcut line; if you find that this line is offset sideways as it enters the measuring field, rotate the lens until the line becomes continuous as it passes from the viewfinder- into the measuring field and out again. This method is to be preferred because of its superior accuracy.



Double image = unsharp

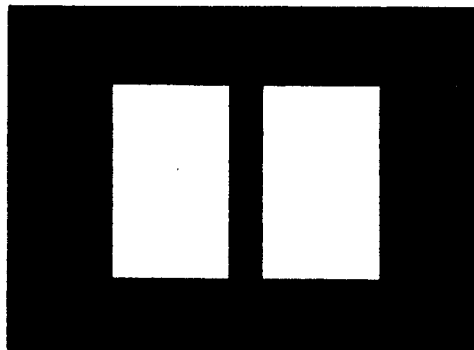


Offset line = unsharp

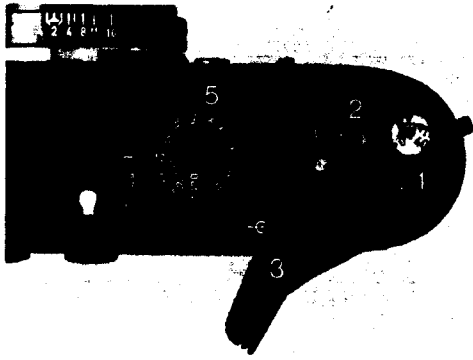


Coincident image = sharp

25979-110 R



Continuous line = sharp



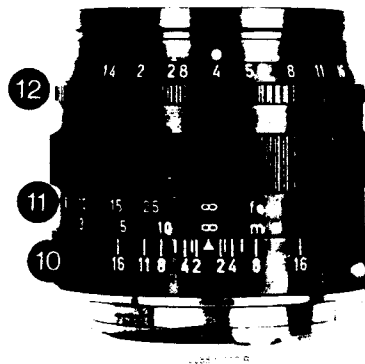
22878-110 R

**The rapid winding lever (3)** at each full lever movement transports the film through one frame, winds the shutter and advances the frame counter to the next number. The film can also be transported by several short strokes of the transport lever. (⊖ = film plane indication).

**The release button (2)** has a thread for a cable release (Code No. 14 067). It should be pressed smoothly, without a jerk, until its soft click indicates that the shutter is released.

**The shutter speed dial (5)** controls the shutter speed and can be set either before or after the shutter is wound. It clicks home at every engraved speed value and except for the range between 8 and 15 any intermediate speeds can be set and are fully effective. At the "B" setting the shutter remains open as long as the release button is pressed. The dial must be set at the symbol  $\text{⚡} = 1/50$  sec. when electronic flash is used.

The LEICA lenses have a fixed ring with depth-of-field scale (10), a rotatable ring for setting the focusing distance (11) and an iris diaphragm ring (12).



#### The distance scale

The distance scale (11) indicates the distance on which the lens is set, and, in connection with the depth-of-field scale (10), the extent of the depth of field. The distance is also important to the calculation of the guide number during the use of flash equipment.

#### The aperture scale

The aperture scale is internationally laid

down; the values have been chosen so that the quantity of light reaching the film is halved every time the lens is stopped down one step. One aperture step is equivalent to one step on the shutter speed dial (5) regarding the adjustment of the light quantity to which the film is exposed. Like the shutter speed dial, the lens diaphragm ring clicks into position opposite each number (some diaphragm rings also at half values). This will enable you, after some practice, to identify the setting of the diaphragm even in the dark.

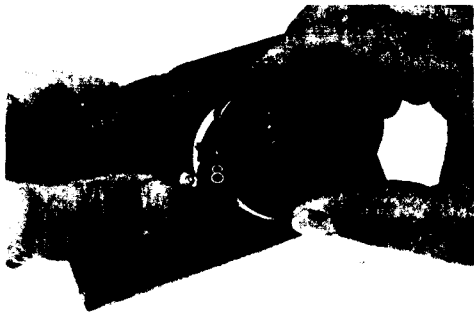


### The depth-of-field scale

The lens reproduces at maximum sharpness the plane, parallel to the film, on which it is focused. This maximum sharpness falls off gradually towards the front and rear; within a certain depth, then, the subject will appear sharp. This depth of field depends on the camera distance, the focal length of the lens, and the lens stop set. Stopping down the lens increases, opening it up decreases the depth of field.

The depth-of-field scale indicates the depth-of-field zone for the object distance on which the lens is focused.

With the 50mm SUMMICRON® f/2 focused on 5m (16ft. 8in), sharpness at f/4 extends from 4m to about 8m (13ft. 4in to about 26ft. 8in). However, if you stop down to f/11 at the same focusing distance, sharpness will extend from 3m to about 20m (10ft. to about 67ft.).



### Inserting the lens

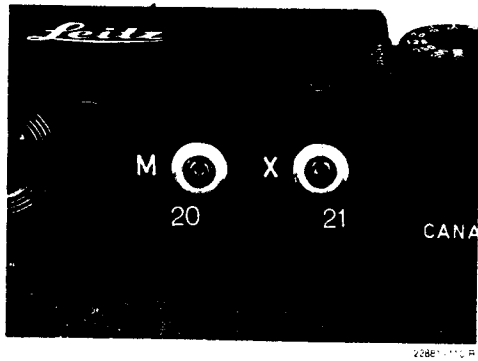
The red knob on the lens mount (8) must face the red dot on the camera body. After a short turn to the right the lens will engage in the bayonet mount with a click. Change lenses in the shade (e.g. of your own body).

Remove the lens cap before you take pictures.



### Taking out the lens

Grip the rear, fixed ring (10) of the lens. Depress arresting button (7), rotate the lens to the left and take it out.



### Flash synchronization

The LEICA M 4-2 accepts all flash units on the market with standard flash plugs (coaxial plug) or with accessory-shoe contact.

The bushes for the cable connection of flash units are arranged on the back of the camera. Flashbulbs are connected to the left-hand bush (20) marked "M", and electronic flash units on the right-hand bush marked "X" (21).

Flash units and adapters without cable connection can be connected through the "X" flash contact in the accessory shoe (9).

Flash cubes and certain types of flashbulb are fired through the X contact bush. The table on the right offers information about the various possibilities. Three flash units may be used simultaneously through the 3 flash connections.

Flash table

Electronic flash		X	B → ⚡ (= 1/50)
Flashbulbs	<b>AG 1</b> Flash Cubes <b>AG 3</b> <b>M 2</b>	X	B → 1/30
	<b>XM 1</b> <b>PF 1</b> <b>XM 5</b> <b>PF 5</b>	M	B → 1/60
	<b>M 3</b>	M	B → 1/125
	<b>GE 5</b> <b>25</b>	M	B → 1/500
	<b>X = Contact or accessory shoe electronic flash</b> <b>M = Contact for flashbulbs</b>		



LEICA lenses act like burning glasses if the LEICA lies with the lens face upwards in full sunlight. You must therefore protect the housing and the shutter by putting on the lens cap or keeping the camera in a case, or in the shade.

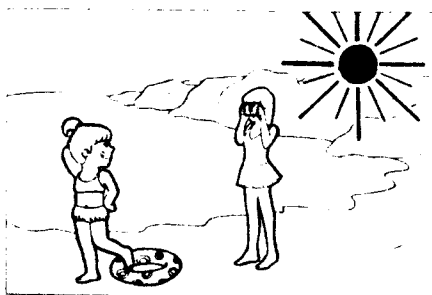
Each lens has, in addition to its type, its "personal" serial number engraved on it. You should make a note of this number as well as of the serial number of the camera engraved on the top of the LEICA. This can be very helpful indeed in case of loss or theft.

The coating of LEICA lenses, together with the use of special UV-absorbing cement, achieves effective exclusion of ultraviolet light. This ensures consequently that all lenses possess the same colour-transmitting properties, irrespective of focal length. The external anti-reflection coatings are wiperesistant.

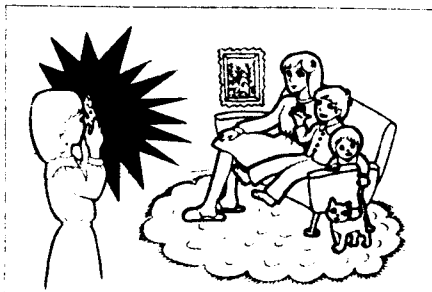
Dust should be removed with a soft sable brush, a piece of cotton cloth (e.g. a handkerchief) washed several times, or lens tissue. Special cleaning cloths, such as are used for the cleaning of spectacles, are not recommended, as they are chemically impregnated and might attack the lens surface (glass used for spectacles has a composition different from that of optical glass for high-quality lenses).

A colourless UVa filter can be left permanently on the lens, where it will protect the front element from external influences, e.g. of sand or sea water spray on the beach.

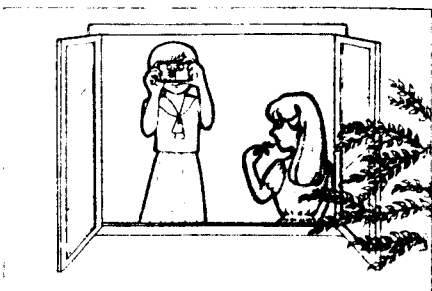
The lens hood, too, protects the lens from accidental finger marks and raindrops. Protect your precious lenses with the appropriate lens caps.



Try to make pictures standing with your back to the sun.



Don't be afraid to use flash often. Not only indoors, but also outdoors.



From dark to bright. Why not use your flash light? Also in the field!

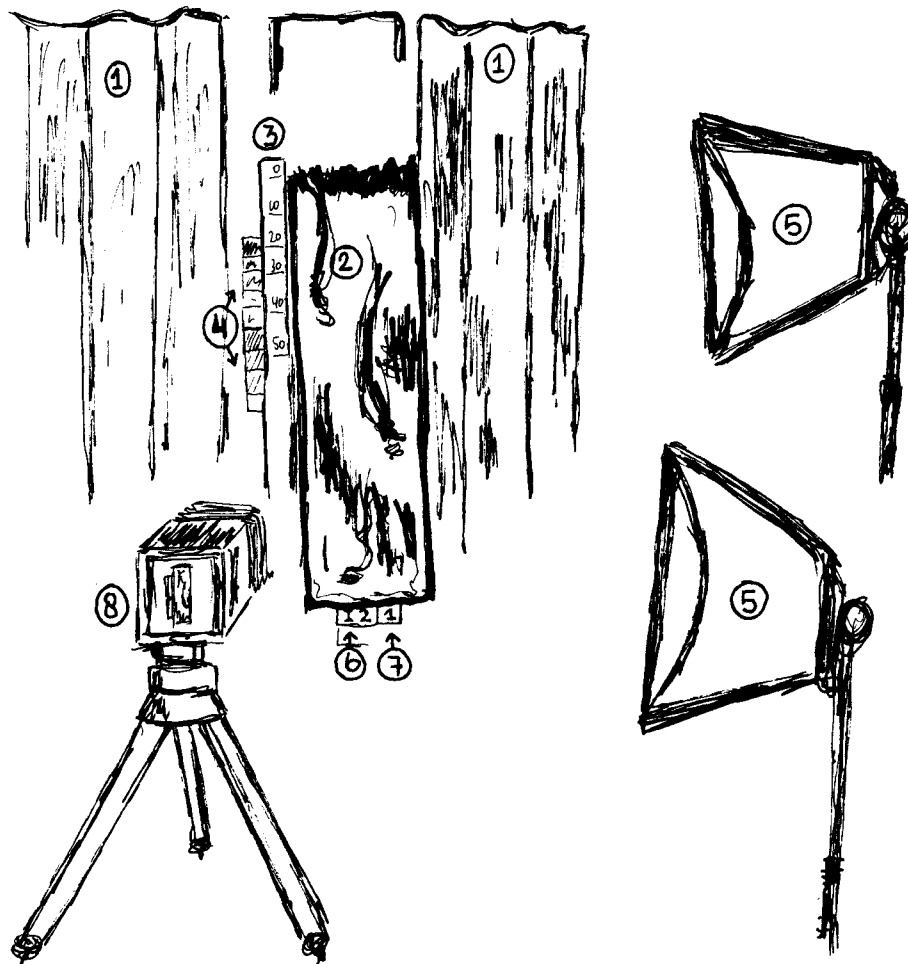
Photographs of soil monoliths

At ISM high quality pictures are made of the prepared soil monoliths, for our records and for use in publications, such as the ISM Soil Monolith Papers and the ISM Monographs.

In a part of the museum a small studio has been made with the use of non-reflecting black curtains. ISM uses a technical camera, the Linhof Technika with a Symmar-S 5.6/150 mm lens.

A good lighting is important. (See figure 14. for composition of camera and lights)

The film used is Kodak Vericolor Type S Commercial film ( size 4 x 5 inch).



- |                                     |                      |
|-------------------------------------|----------------------|
| 1. Non-reflecting black curtains    | 5. Flash lights      |
| 2. Monolith                         | 6. Code no. monolith |
| 3. Regular                          | 7. Picture no.       |
| 4. Grey chart, colour chart (Kodak) | 8. Technical camera  |

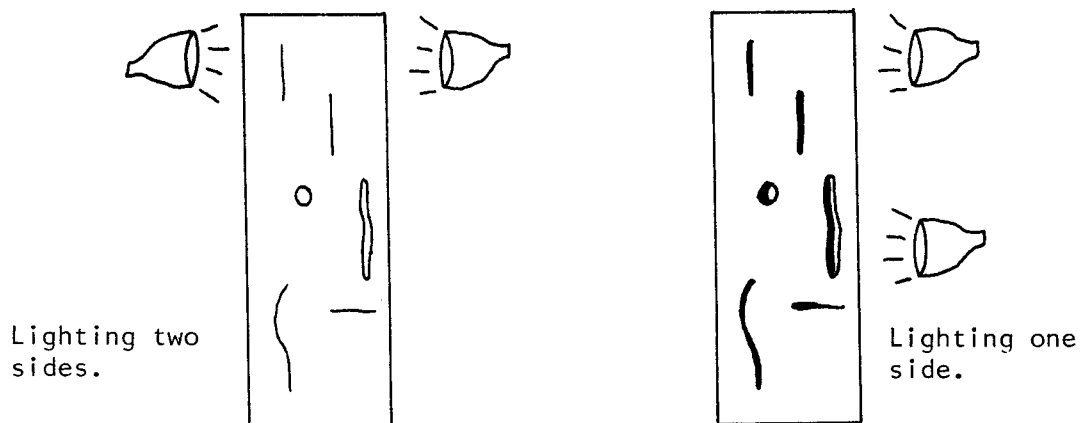
figure 14. Composition of camera, flash lights, etc.

## Lighting of monoliths for photography

A good lighting is essential to get good quality photographs.

It should be as 'natural' as possible.

At ISRIC, artificial light comes from one side, with an even distribution with just enough shadow to show the relief in the monolith.



Too much shadow should be avoided; use can be made of a white reflection board on the opposite side of the monolith.

At ISRIC, also colour slides are made of all the monoliths. These can be used for lectures, sale to interested people, or for publications.

The film used is: Kodak Ektachrome 64, daylight, professional

ASA 64 - DIN 19

As with microscopic photographs test pictures are first made with direct-ready apparatus, e.g. Polaroid, mainly to check the lighting of the subject.

High quality photographs were made for ISRIC's Podzol-poster (1983) and the ISRIC/Elsevier Chart of World Soils (in preparation).

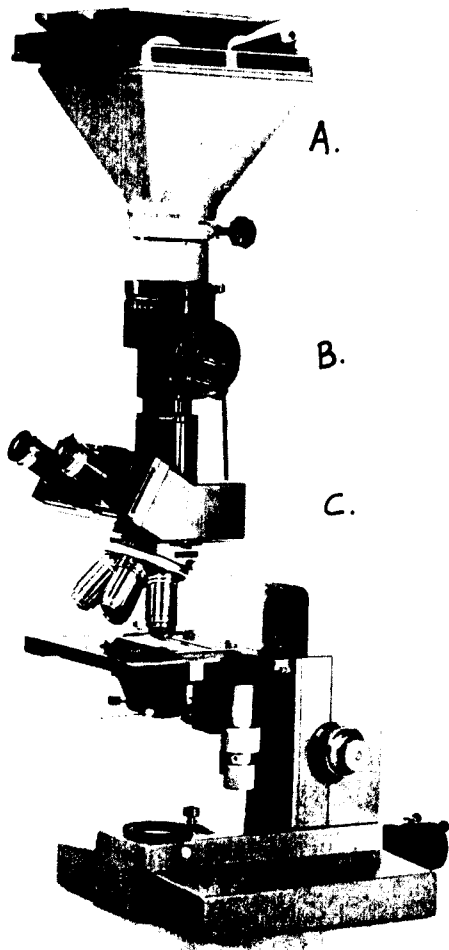
For photographs of monoliths and thin sections also black and white pictures are made, e.g. for publications.

Use is made of negatives format of 4 x 5 inch (10.2 x 12.7 cm);

the film is Agfapan 25 professional ASA 25 - DIN 15.

Photographs for micromorphology

At ISRIC the following set-up is in use:



A. Camera 4 x 5 inch

B. Exposure meter  
microsix-L

C. Microscope

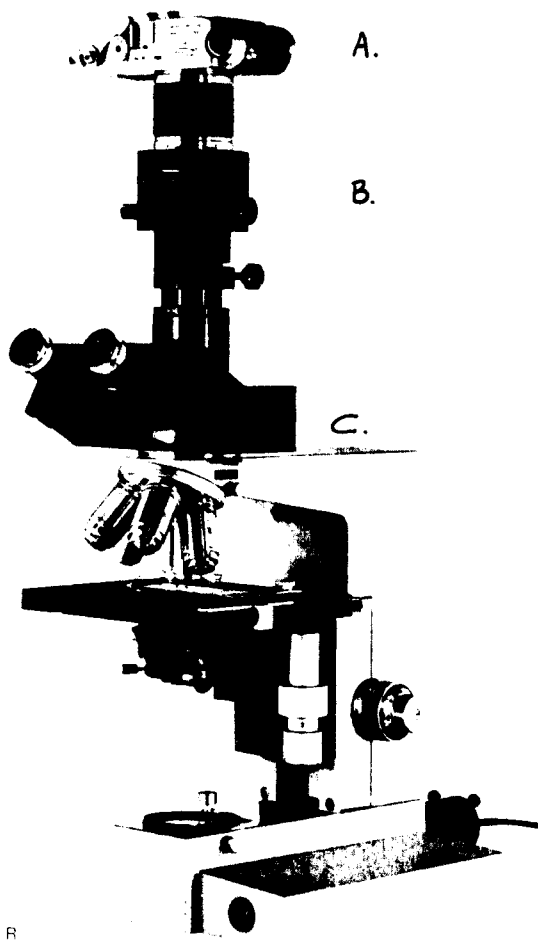
Photo 3.

The film in use at ISRIC is Kodak Vericolor II Commercial (4 x 5 inch).

Most prints are 15 x 20 cm, but for poster sessions 30 x 40 cm prints are made if needed.

Slides of micromorphological features are made with Kodak Ektachrome Professional Film (ASA 50/18 DIN).

At ISRIC use is made of the following set-up:



A.

B.

C.

A. Camera Leica MDa

B. Exposure meter microsix-L

C. Microscope

40 R

photo 4

The slides are mostly used for educational purposes, but they can also be multiplied for exchange of information, research results, etc.

Also in some ISRIC publications of slides are incorporated (ISRIC Soil Monolith Papers).

All colourfilms as well as photographs, are developed and printed by professional laboratories, such as those of Agfa and Kodak.

#### Photographs of texts and drawings

Black and white photographs are developed and printed at ISRIC itself.

In use is a Leica MDA with Leitz Visoflex with 1 : 2.8/90 mm lens.

Film: Agfaortho 25 Documentfilm.

The exposure time is measured with DIN 14. This film gives a very good contrast, especially if developed with Ilfo speed developer at 1 : 5, in 7 minutes at 20°C.

For the exposition type written texts are photographed and enlarged to size needed. (See figure 15 )

Also other written information, such as figures, tables and drawings can be photographed and used in an exhibition or for publications.

NB: For the photography of soils and landscapes, reference is made to ISRIC Technical Paper 2, by J.M. Ragg and D. Creutzberg.

**Depth: -3 cm**

**Horizon: 0**

**Mining by soil fauna of needles and roots.  
The inner part of coarse organic matter is  
eaten, leaving the outer wall intact.  
Excrements within cavity**

Figure 15. Type written texts (enlarged)

### Poster sessions

Especially during the last few years an increased use of posters can be seen at congresses, symposia and other gatherings.

Important points are: improved communication possibilities with persons who are interested in this particular subject; the poster can incorporate the most up to date information, since no full paper needs to be sent long before the meeting.

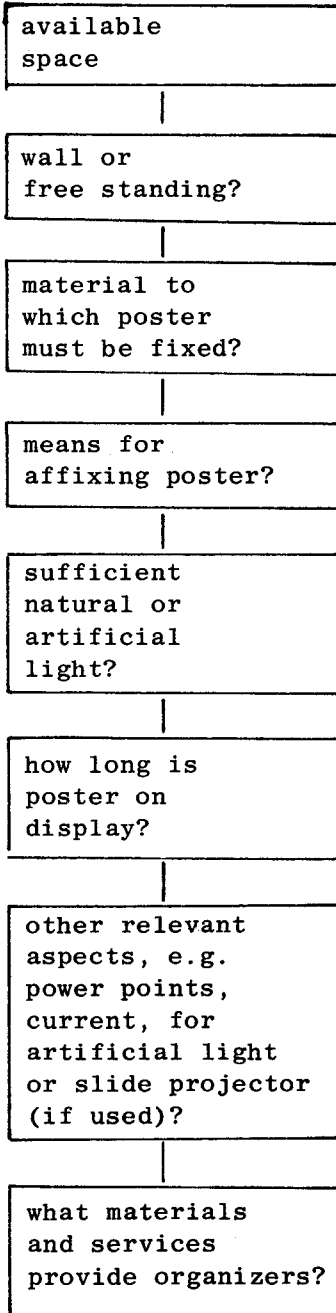
A poster cannot only be used to present scientific work, but also to show other information, e.g. the aims and programme of an institute, a project, etc.

In advance, a rather detailed investigation on the local possibilities for presentation and on the purpose of the particular poster session must be made.

The following schematic table can be used as guidelines.

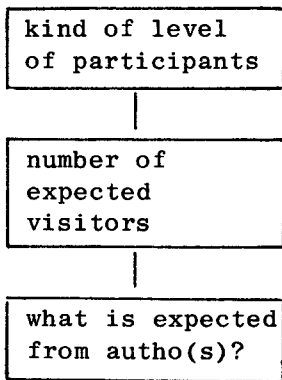
①

Presentation possibilities and means.



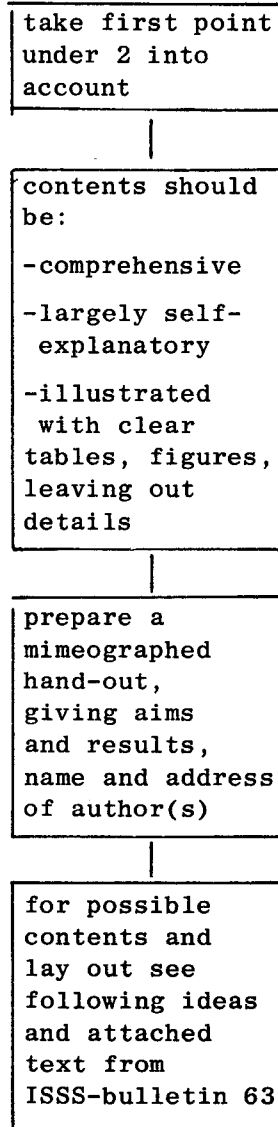
②

Purpose of poster presentation



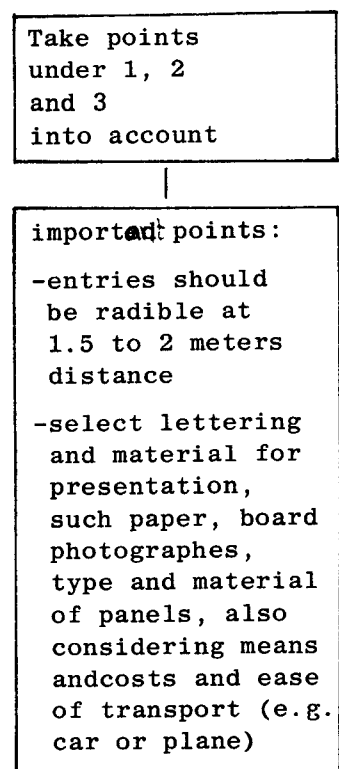
③

(Scientific) contents of poster



④

Preparation of poster





## The Preparation of Poster Presentations - some Suggestions

Many organizers of conferences, symposia and meetings consider the presentation of information by the display of posters an appropriate means of communication. During the past few years poster sessions have become increasingly more popular, also at ISSS gatherings. Although conference organizers usually send more or less detailed instructions for poster displays, it is found useful to give some general suggestions for the preparation of posters and related information.

A poster presentation provides an ideal medium for informal exchange of ideas and discussion between speaker and audience. They provide time for more satisfying, detailed discussions than formal paper session. The audience can choose the posters they wish to study and are not held "captive" as in a formal paper session.

A poster presentation, although similar in many respects to an oral presentation, requires some modifications in preparation. The following suggestions are intended to help in the preparation of an effective poster display which will mutually benefit the author and the audience.

Three basic criteria for an effective display, aside from scientific content, are that it be ATTRACTIVE, well ORGANIZED, and largely SELF-EXPLANATORY. The appearance, both of the display as a whole and of individual illustrations is obviously important. A cluttered and disorganized display will detract from the scientific content and will not attract much interest. The display should be largely self-explanatory. An observer can view the data and follow through to the interpretations and conclusions with minimal input on the author's part.

The author should preferably be present during the poster session. This serves two purposes: first to coordinate the illustrative materials into a complete, well documented presentation; secondly and most importantly, to promote communication between the author and the audience. A well-organized and self-explanatory display would permit to avoid unnecessary repetitious descriptions of each illustration, and allow a discussion.

The following suggestions may aid in preparing and presenting an effective and successful poster display.

1. Select a few major ideas, do not attempt to overwhelm the audience with data. Use summary-type diagrams and emphasize interpretations and

applications and/or conclusions. Ideas peripheral to the main theme can be brought out in discussion.

2. The contents of a poster may be divided into individual boards containing an abstract, an introduction, the results and a discussion. The abstract should list the pertinent results and conclusions. The introduction should include a background summary and state the purpose of the study in relation with previous work in the field. The results should be divided, using sub-headings which indicate the most important finding to be illustrated in the respective section. In general, a few results as possible, i.e. just those necessary to validate the conclusions, should be shown. A poster overloaded with findings will rarely attract attention. There is no obligation to fill the entire space available with information! The discussion should give the interpretation and the significance of the results, and an easily remembered 'take home' scheme, even if speculative, summarizing the conclusions.
3. The individual boards with text, tables and illustration should be arranged in a sequential order (by numbers, letters, or arrows) with data leading progressively from the introduction, through the results to the conclusions. Arrangement of material can be used effectively to provoke thoughtful questions from the audience.
4. The title of the presentation, which usually appears in the programme, should be included in the display. Individual illustrations or displayed articles should have a brief explanatory caption. Caption and lettering on illustrations should be sufficiently large to be read at a distance of 2 meters. All lettering should be at least 15 mm (5/8 inch) high, preferably in a bold face type. The use of only capitals is discouraged, since lower case letters can be better read. Typescript should be photo-enlarged with a minimum magnification of 3.
5. Unnecessary details in preparing charts, drawings and illustrations should be avoided. Try to keep everything as simple as possible. Avoid "arty" or overly ornate presentations.

Block colouring can be useful to add emphasis and clarity. All lines should be heavily drawn and at least 2 mm (1/16 inch) thick. Handlettered material should be at least 25 mm (1 inch) high. Use more than one colour in preparing graphs and lettering of the poster, but red and green in one picture should not be used.

6. Ideally, a poster should be self-explanatory. The poster session potentially provides an intimate forum for informal discussion. However, this becomes difficult if much time has to be spent on merely explaining the poster to a succession of visitors.

A brief 3-5 minute oral presentation should be prepared and can be made periodically to small groups. This can be used to present the objective of the study, provide background material, lend additional continuity to the poster sequence, and reiterate conclusions.

7. To assist with any detailed explanations to interested viewers it is suggested to have one or two felt marking pens, pencils or ballpoints and a tablet of suitable sketch paper (A4 or 9x12 inch) available. Also, copies of the expanded text, tables of data, figures, etc. should be available for people requesting detailed information on the topic of the display. This text should include the author's full address.

8. Transporting a poster display to a conference can be a problem and depend largely on the means of transport, and size of the individual panels of the presentation.

The display should in any case not be mounted on heavy board, triplex, fibreboard, or other heavy materials, because these may be too heavy to transport economically and too heavy to affix on the poster boards. It is handsome to prepare a display on light-weight cardboard which can be rolled and placed in a heavy-duty cardboard tube. Alternatively, the individual panels could be made to fit a suitcase for flat transport.

At the conference posters will usually be mounted on fibreboard by means adhesive tape (or a removable type!) or drawing pins. These items are

usually provided by the organizers. Writing and painting on the poster boards should be strongly discouraged.

9. A suggested display is as follows. The posters should not be closer than 75 cm (30 inch) to the floor, while the height should not be greater than 250 cm (100 inch) and preferably less than 225 cm (90 inch) from the floor.
10. Before preparing the final presentation, it is useful to make a small-scale model, taking into consideration the size of the poster boards and supplementary wishes of the organizers.

These notes have been assembled by J. van Baren, International Soil Museum and are based upon information supplied by the American Association for the Advancement of Science, the American Association of Petroleum Geologists, the American Institute of Biological Sciences, the American Society for Neuroscience, the Federation of American Societies for Experimental Biology, the Education Media Institute of the State University Utrecht, the Audiovisual Centre of the Agricultural University Wageningen, and the organizers of the 11th International Congress of Soil Science in 1978, the Second International Congress of Ecology in 1978, and the International Conference on Soils with Variable Charge in 1981. This help is gratefully acknowledged.

The discussions with Mr. W.C.W.A. Bomer, technician/photographer of the International Soil Museum and the joint production of a number of posters since 1977 have been very helpful in preparing these notes.

Text ISSS-bulletin no. 63.

At ISRIC frequently use is being made of adhesive polysterene plate of 1 mm thickness, adhesive fixed to an adhesive foam plate of 1 cm thickness.

Advantages: - easy and quickly to use on display  
- can also be used unaffixed  
- light to carry

(see photo 5 )

Disadvantages: - large panels are difficult to handle  
- the foam plate is damaged easily and for transport by public means a carrying box is necessary.  
Transportation charges can be high.

If only strong paper or photographs, plasticized or not, are used:

(see photo 6 )

Advantages: - easy and cheap transport, flat or rolled.  
- very light to carry/transport  
- no problem with affixing with thumbnails or tape  
- more flexible way of presentation

Disadvantages: - less neatly than first method  
- can not be used unaffixed

For brandnames of polysterene plates and foam plates, please apply ISRIC.



International Soil Reference and Information Centre

P.O. Box 353

6700 AJ Wageningen

The Netherlands

Phone: (31)-(0)8370-19063

Cables: ISOMUS