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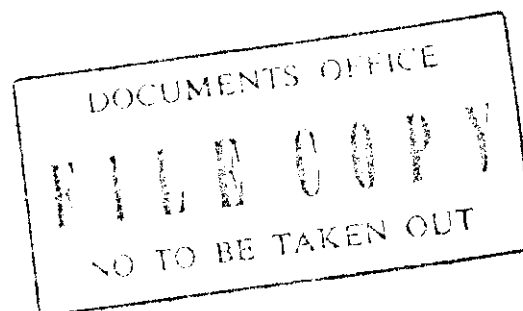
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REPORT ON THE POSSIBLE APPLICATIONS
OF THEMATIC CARTOGRAPHY TO PEDOLOGY

Paper submitted by the Government of the Republic of Tunisia

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REPORT ON THE POSSIBLE APPLICATIONS
OF THEMATIC CARTOGRAPHY TO PEDOLOGY^{1/}

The inventory of soils and of their crop suitability is the main concern of cartography in the Pedological Department.

Two kinds of map are produced. They have different aims:

The pedological map, where the inventory of soils is based upon a scientific classification, is useful on the one hand for regional syntheses of other countries, and on the other to support and justify the crop suitability map.

The mapped phenomenon is supposed to be discontinuous on the same lines as vegetation or geology, and is represented by areas. The discontinuity, which is sometimes difficult to see on the field, becomes obvious with aerial photography, and the accuracy of the limits is in relation to the scale adopted.

The evolution of this type of map has been for standardization with a view to homogenizing all the pedological maps published in Tunisia and to conforming as closely as possible to internationally accepted norms.

The classification adopted in Tunisia is that of M.G. Aubert and Ph. Duchaufour (1). It consists of ten classes subdivided into sub-classes, groups, sub-groups, etc...

Each class corresponds to a particular mode of pedogenesis and thus makes up the base. The subdivisions complete and determine this mode of pedogenesis, and give indications on the specific character of each soil.

^{1/} Translation submitted by the Tunisian Government

The hierarchization of characteristics, from the most general at the class and sub-class levels to the most detailed at the series and type levels, is the main problem in cartography. There are other problems such as that of interference between soil types with a different evolution, and buried or exhumed fossil soils which may or may not be subject to a further evolution.

The cartographic reproduction of the soil theme is subjected to a continuous adaptation which takes into account the scale, with the possibility of introducing details, and of interpolating or extrapolating. It depends directly on the existence of topographic data on the required scale.

Each type of soil or class is represented by a shade (colour in its usual acceptance). Within this shade (class), variations in intensity show the sub-classes. The groups are marked by luminance (Darkening with superimposition). Thus, down to the group, all the possibilities of the colour are put to use.

From the sub-group, starts the field of superimposition by tapes or cartridges, by coloured circles and by signs, letters and numerals indicating interference, pedogenesis superimposition, superimposition of soils, characteristics of parent rock, texture, physical and chemical characteristics, etc...

The signs, letters and numerals are conventional and are being continually improved in order to simplify both reading and printing.

However, the choice of the colour (shade) is more difficult; as, although equally conventional, the colour is the first item perceived and is bound to make a psycho-physiological impact. That is why impressions, psychovisual and suggestive associations have all been put to use.

The colour blue is generally associated with water; consequently, hydromorphs are coloured blue.

The colour red indicates Mediterranean red soils, and the colour swarthy brown is for isohumic brown soils.

In some cases, these principles have been observed; in others, the choice has been arbitrary.

It is in this field that we expect a lot from international collaboration to rationalize and standardize colours; since it is a lasting part of a map and its first perceived and most important element.

TABLE I

SOIL CLASSES:

I. Unchanged soils.....	White
II. Little changed soils.....	Grey
III. Vertisols.....	Dark Blue
IV. Calcareo-magnesiums.....	Yellow
V. Isohumic soils.....	Brown
VI. "Mul" soils.....	Orange
VII. "Mor" soils.....	Violet
VIII. Soils with liberated sesquioxides (Red).....	Red
IX. Halomorphic soils.....	Green
X. Hydromorphic soils.....	Blue

Sub-Class: Rendziniforms

- Group a : True Rendzines..... Orange yellow
- Group b : Rendzines with horizons..... Lemon Yellow

Sub-class: Gypsous accumulation soils

Group: Localized gypsous accumulation: Greyish yellow

As for soil suitability maps for dry and irrigated crops, they take pedological maps as a base. They are utilitarian maps.

TABLE II

Dry soils suitability

P - Plantation.....	Yellow
C - Annual crops, cereals and fodder....	Blue
Pat - Pasture.....	Brown
Pc - Track.....	
F - Forest.....	Pink

Irrigated soil category

A - For all crops.....	Pink
B - Plantation.....	Yellow
C - Annual crops and fodder.....	Blue
M - Market gardening.....	Violet
E - Non irrigable.....	Blue

Soil categories are indicated by letters which are either the abbreviation or the initial of the word (e.g. P -"Plantable"), followed by a number 1 - 2 - 3 - 4 indicating quality (1 for first quality, 4 very low quality).

Symbols indicating work are stylized so as to be suggestive.

Suitability maps can be without colours, but this would make them less legible.

Colours in maps painted by hand are practically unchanged since the first published maps: the choice of colours being arbitrary, it was normal to keep to the system for the practising user.

For printed maps, however, this is changed because of the high cost of these maps of which a large number is required. Printing with one colour (pink for suitability maps for dry crops and blue for irrigated crops), and by using variations of grain and of screen, has occasioned large savings without a decrease in legibility.

After the purchase of equipment for a wide circulation (offset printing machine) operating automatically (typography and colour selection), pedological maps which go beyond the purely national boundaries may now be produced. The Department has been aiming at the rationalization, standardization and simplification of maps.
