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SUBSOIL ARCHIVES OF THE CITY OF ZURICH

by

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Translated by Mrs. Severine Britt

U. S. Geological Survey

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SUBSOIL ARCHIVES OF THE CITY OF ZURICH
(A translation)

VON MOOS, Dr. A., Ein Baugrundarchiv der Stadt Zurich: Schweizerische Bauzeitung, vol. 122, no. 3, July 1943.

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In problems of underground works and city planning, it is of importance to have as many detailed data as possible on the composition of the subsoil and its hydraulic, stability and plastic properties (slides, settlements). New observations on underground works should continuously be embodied in the overall picture in order that forecasts may be made with greater likelihood of being correct. In general the geologic maps do not give such information down to the minutest details as would be necessary for estimating foundation conditions. From the scientific viewpoint, for which they are primarily intended, these maps are mainly concerned with the age references of the formations. Frequently also records of previous constructions are lacking either because the builder or the experts are out of reach or because the subsoil is under privately owned property and records are not available to the public. Thereby the work is hampered. In the interest of economical construction advantage cannot be taken of previous experience in the neighboring area. Borings have to be made in areas which in the course of previous engineering works were already investigated, or they cannot be carried out in places that in light of former

experience would have proved to be among the best for the elucidation of local geologic and technical conditions. Whereas historical records are gathered, examined and processed in Zurich by the town archivist and the prehistorical discoveries by the country museum, and the necessary funds are provided for that purpose, there has been up to the present time a lack of such a central organization in Zurich for the collection of observations, information and discoveries concerning the subsoil, in spite of data being here and there available among private and official groups.

In order to fill up that gap, the Research Institute for earth-work engineering of the E. T. H. [Eidgenossische Technische Hochschule (Swiss Federal Institute of Technology, Zurich)], which is composed of the Soil Division of the Hydraulic Research Institute (Prof. Dr. E. Meyer-Peter) and the Geotechnical Laboratory (Prof. Dr. P. Niggli), and which is concerned with questions of earth-work engineering and geology of foundations, started several years ago the establishment of archives for foundation soil. In the form of a card-index, which is based on the excellent map of Zurich 1:5000, a large quantity of geologic-technical sketches and plans, bore logs and photographs from past investigations of excavations were gathered and registered. The material is derived partly from the Institute's own data, partly from private firms and officials, whose cooperation is here gratefully acknowledged, and in part from existing publications. Recently, thanks to the assistance of the City engineer H. Steiner, an information service for major underground construction has been organized at the archives by the Municipal Underground Construction Office. The card index is made up of a collection of publications on the building ground of Zurich.

The subsoil archives, at present numbering several hundreds, are kept in the Geotechnic Laboratory of the Institute of Natural Sciences of E. T. H., Sonneggstrasse 5, 2. Stock (f), Nordbau, Zurich 6 (near the House guardian's domicile). The archives are open to interested people every Friday from 8 to 10. At the same time the writer gives verbal information (Tel. 27330, Intern. 577).

The archives gathered up to now constitute only a beginning and the compilation must be continued so that their purpose may be better fulfilled. The compiler's time available for that work being limited, and the city of Zurich covering an area of 87.7 km² where the subsoil is constantly being exposed, an appeal is made for the free cooperation of the groups interested in the subsoil of our town (municipal building officials, engineers, architects, geologists, contractors). This cooperation may consist of: temporary or permanent release of new and previous records, expert opinions, publications, maps, sketches, profiles; making negatives available; release or sale of photographs of the Zurich area that may reveal something about the building ground (for example probing pits, bore holes, ground-water borings, investigations of building ground, slides, excavations, foundations, conduit trenches, observations on settlement and crack). To insure the practical or scientific usefulness of these records and data, whenever possible some details should be given to supplement the title, such as a clear description of the material (nature and size of the single constituents, for example pebbles in cm., eventual admixture, consistency, degree of moisture, color, springs, rock pressure, ground water, etc.), the orientation, and on photographs an indication of scale (hammer, meter, man). It would be also desirable for a contributor interested in geology to regularly watch over some areas of the town for incidental information, to record his observations and hand them over to the Archives either permanently or temporarily so that they can be of assistance in the archives project.

The progressive improvement of the subsoil archives, making possible a better distribution of information, will also provide the basis for the geologic map of Zurich and vicinity 1:25000 now under preparation so far as it includes the inhabited area. Moreover, there is a possibility later, on the basis of the collected data, to make a map of the building ground of the city of Zurich, at the scale 1:5000 or 1:10000 and eventually to publish it. In contrast to the geologic maps, in which the units represent deposits of the same age and secondarily deposits of the same composition, and therefore are more difficult to interpret for engineering questions, the building ground map should be arranged according to the composition of the material, and soil zones of various physical properties should be clearly distinguished. In addition, information and regions of particular interest should be described in short papers that present engineering conclusions and scientific geologic interpretation. The compilation of characteristics of the important soil types of the city through technical coefficients (compressibility, ratio of soil pressure to settlement, permeability, shearing strength, etc.) could also be taken into consideration. A collection of the important and technically significant unconsolidated and hard rocks of the subsoil of Zurich labeled according to uniform terminology could supplement it.

The need for collecting observations on the building ground of municipal and semi-municipal areas for building-technical purposes exists in most of the large communities. Preliminary arrangement for the gathering of data or large-scale geologic maps has been made in Switzerland in Schaffhausen-Neuhausen, St. Gallen, Aarau, Lucerne, Frybourg, Lausanne, Bale, Genf; this should also be done in other municipalities. Finally it will be mentioned that archives and maps for building grounds are also known in foreign countries (Vienna, Gratz, Munich, Dantzig, Koenigsberg, New York, Philadelphia, New Orleans, etc.)