GROUNDSCAPE

Excursion on underground projects
Incan agricultural terraces at Moray, Peru

LANDSCAPE
OCTOPUS, RENEWAL PROJECT OF SALERNO QUARRY, 2009
OCTOPUS, RENEWAL PROJECT OF SALERNO QUARRY, 2009
GROUND AS MATERIAL
GROUND AS MATERIAL

CARRARA, A PHOTOGRAPHY PROJECT BY AGLIA KONRAD, 2011
double negative, Michael Heizer, 1969-70
GROUND AS MATERIAL

EWHA, WOMANS UNIVERSITY, SEOUL, 2008
GROUND AS MATERIAL
RAINWATER RE-USE:

- RAINWATER SEWER
- OVERFLOW
- DRAINAGE
- OVERFLOW PUMP
- RAINWATER TANK
- TO BUILDING WATER SUPPLY
ENHANCED ECOLOGY

GREEN ROOF

SITE INSERTION

MITIGATION OF STORM WATER

WATER CONSUMPTION

PASSIVE HEATING

ROOF INSULATION AND INERTIA

THERMAL LABYRINTH

HEAT & COOLING RECOVERY

GROUND WATER ENERGY

COMPACT FORM

GOOD THERMAL INSULATION

NATURAL LIGHTING

NATURAL VENTILATION

COMBINED HEAT AND POWER PLANT

GROUND AS MATERIAL

EWHA, WOMANS UNIVERSITY, SEOUL, 2008
GROUND AS MATERIAL

EWHA, WOMANS UNIVERSITY, SEOUL, 2008
TAGLI, LUCIO FONTANA
GROUND AS MATERIAL
GROUND AS MATERIAL

CITY OF CULTURE, YEOSU, KOREA, 2009
DISAPPEARANCE

NORTH, EAST, SOUTH, WEST, MICHAEL HEIZER
VELODROME AND OLYMPIC SWIMMING POOL, BERLIN, 1999
VELODROME AND OLYMPIC SWIMMING POOL, BERLIN, 1999
SACRED
CHICOMOZTOC, THE AZTEC CAVE OF ORIGIN, AS DEPICTED IN THE HISTORIA TOLTECA-CHICHIMECA
Sanctuaire Notre-Dame du Laus, 2012

Sacred
SANCTUAIRE NOTRE-DAME DU LAUS, 2012
cenote suytun, MExico

sacred / light

CENOTE SUYTUN, MEXICO
LIGHT
RODEN CRATER, JAMES TURREL, 1979-2011
Lumière

Jour - Nuit
CIEL

PRISME - Miroirs.

FERRE

UN INSTRUMENT D'OPTIQUE:
POUR CONDUIRE LA LUMIÈRE
AU CENTRE DE LA TERRE.
CITY OF CULTURE, SANTIAGO DE COMPOSTELA, 1999
RENOVATION OF THE DUFOUR PAVILION, VERSAILLES, 2014
CONFERENCE CENTER, SAINT GERMAIN EN LAYE, FRANCE, 1991
NARCISO, MICHELANGELO MERISI DA CARAVAGGIO, 1597-1599
RENOVATION AND EXTENSION PROJECT FOR A BANK HEADQUARTER, BRUSSEL, 2013

LIGHT / HERITAGE
RENOVATION AND EXTENSION PROJECT FOR A BANK HEADQUARTER, BRUSSEL, 2013
RENOVATION AND EXTENSION PROJECT FOR A BANK HEADQUARTER, BRUSSEL, 2013
RENOVATION AND EXTENSION PROJECT FOR A BANK HEADQUARTER, BRUSSEL, 2013
TOPOGRAPHIA PARADISI TERRESTRIS, ATANASIUS KIRCHER
LIGHT / THE URBAN SCALE

BIBLIOTHÈQUE NATIONALE DE FRANCE, PARIS, 1995
the urban scale
The Urban Scale

Sketch for the BNF and Piazza Garibaldi in Naples
THE URBAN SCALE

THE DIFFERENT LEVELS OF CITY, BNF AND PIAZZA GARIBALDI IN NAPLES
THE URBAN SCALE

DESNATUREZA, HENRIQUE OLIVEIRA
THE URBAN SCALE

PIAZZA GARIBALDI, NAPLES, 2014
PIAZZA GARIBALDI, NAPLES, 2014

THE URBAN SCALE
PIAZZA GARIBALDI, NATURE IMAGE
PIAZZA GARIBALDI, NAPLES, 2014

THE URBAN SCALE
THE URBAN SCALE

PIAZZA GARIBALDI, NAPLES, 2014
PIAZZA GARIBALDI, NAPLES, 2014

THE URBAN SCALE
THE "Land of the Rising Sun" (Japan) is subject to earthquakes of distressing violence at times, and the concentration into small areas of increasing city populations invites great destruction, such as that of the Tokio earthquake of 1923, unprecedented in magnitude of property loss, as well as life.

It was natural, then, that the best engineering brains of Japan should be devoted to the solution of the problem of building earthquake-proof structures, and a clue was given them by the interesting fact that tunnels and subterranean structures suffer less in seismic tremors than edifices on the surface of the ground, where the vibration is unhealed.

The result of research, into the phenomena explained above, has been the design of the enormous structure illustrated, in cross-section, at the left—the proposed "Depthscraper," whose frame resembles that of a 55-story skyscraper of the type familiar in American large cities, but which is built in a semicircular excavation beneath the ground. Only a single story protrudes above the surface; furnishing access to the numerous elevators; housing the ventilating shafts, etc.; and carrying the lighting arrangements which will be explained later.

The Depthscraper is cylindrical; its immense wall of armoured concrete being strongest in this shape, as well as most economical of material. The whole structure, therefore, in case of an earthquake, will vibrate together, resisting any crushing strain. As in standard skyscraper practice, the frame is of steel, supporting the floors and inner walls.

Fresh air, pumped from the surface and properly conditioned, will maintain a regular circulation throughout the building, in which each suite will have its own ventilators. The building will be lighted, during daylight hours, from its great central shaft, or well, which is to be 72 feet in diameter. Prismatic glass in the windows, opening on the shaft, will distribute the light evenly throughout each suite, regardless of the hour.

Making the Most of Sunlight

In order to intensify the degree of daylight received, a large reflecting mirror will be mounted above the open court, and direct the sun's rays there.
Vue cavalière déshabillée de la station « République »
SKYSCRAPERS DOOMED

by WILLIAM JENNINGS

SAFE from bomb attacks—free from disease and changing temperatures—living in cities a mile beneath the surface of the earth—such is the dream of science for the man of the future, a not impractical dream which may doom the towers of Manhattan and every other large city to destruction.

Despite its towering skyline, the trend of building construction in New York City has been ever downward. Today the island of Manhattan and its surroundings are honeycombed with a vast network of underground facilities. There are more than 130 tunnels and underground areas in the metropolitan district; more than 2,800 miles in the subterranean sewage system, and about 600 miles of subway trackage carrying 3,000,000 passengers every day.

With habitable space growing more scarce every year in the crowded centers, architects and scientists freely predict that vertical cities, built from the earth's surface downward, may eventually supplant the skyscrapers of today.

The reasons for their belief in the practicability of such a plan lies in the recent successful tests of a machine known as the "centrifuge" invented by Professor Philip B. Buckey, of Columbia University.

Explain in its most simple terms, Professor Buckey's machine is a device into which accurate scale models of underground structures may be placed and whirled about in such a way that the centrifugal force equals the actual earth stress to which full sized construction would be subjected. Built of the same materials as the structure to be tested, the model is placed on the centrifuge and whirled at speeds up to 4,000 revolutions a minute until the centrifugal force tends to pull the model apart.

A movie camera simultaneously records each revolution of the machine. When the film is run off on the screen, it shows up the stress and strain under varying degrees of force up to the collapse of the model.

Heralds New Building Era

From these technical tests a new science of foundation engineering is expected to develop. Lack of a yardstick with which to measure the stresses of the earth has hitherto kept architects from planning extensive underground projects.

Testing depths up to 5,000 feet, the centrifuge opens up an amazing vista of life in the future. It will be possible to have business blocks under airports with the use of ultra-violet lamps. The temperature would be constant at about 62 degrees. Coal hills would no longer worry the householder and bacteria would be killed.

Professor Buckey does not venture to make extravagant predictions. His centrifuge does not construct; it merely tests. The advantage of the machine lies in the fact that the safety of underground buildings may be absolutely proven by testing miniature models.

surface left clear for planes. Vast subterranean caverns could be constructed, capable of sheltering entire populations against enemy bomb attacks. Office buildings, factories, homes and theaters—all could be sunk into bedrock.

Life underground would be different only in the respect that conditions, under scientific control, would be more sanitary and healthful. Conditioned air would prevail and the sun's absence compensated for by the use of ultra-violet lamps. The temperature would be constant at about 62 degrees. Coal hills would no longer worry the householders and bacteria would be killed.

Professor Buckey does not venture to make extravagant predictions. His centrifuge does not construct; it merely tests. The advantage of the machine lies in the fact that the safety of underground buildings may be absolutely proven by testing miniature models.

Photo at right shows one of the three-tube subway tunnels, part of the vast network underlying New York City. This picture is a possible foretaste of the future underground city shown below. Non, eleven shafts which will carry city cave dwellers from one level to another, the giant air conditioning tubes and the enclosed walkways which will carry the traffic. Lower part of drawing shows an underground apartment facing on a street lined with stores and shops furnishing all necessities.
URBAN NETWORK

PARIS SOUS LA SEINE, PAUL MAYMONT
Les Halles : le général de Gaulle a étudié douze projets confidentiels. Les voici.


Montreal « reso », underground network

Urban network

Montreal « RESO », UNDERGROUND NETWORK
TORONTO DOMINION CENTER, MIES VAN DER ROHE, 1967
URBAN NETWORK

FUKOKU TOWER, OSAKA, JAPAN 2012
«CITIES WITHOUT GROUND» A RESEARCH PROJECT BY J. SOLOMON, C. WONG, A. FRAMPTON