

as to enable the formed type to be ejected into a trough or guide, where it remains until the types for the whole of the proposed line have been brought, one after another, into said trough or guide behind it, when the whole line is by certain automatic appliances swept or slid into a galley prepared for its reception, the galley in turn being automatically advanced after the reception of each line of type. . . .

Science News Letter, February 11, 1933

SEISMOLOGY

Sea Bottom North of Japan Shaken by Third Earthquake

FOF the third time in a few months, the sea bottom near the island of Sakhalin, north of Japan, was shaken by a deep-seated earthquake, on last Friday afternoon, Feb. 3, at 5:10.7 p. m., eastern standard time. The location of the quake was calculated by scientists of the U. S. Coast and Geodetic Survey and of the Jesuit Seismological Association on the basis of data supplied to Science Service by Georgetown and St. Louis Universities.

Science News Letter, February 11, 1933

Cellophane greenhouses are something new for gardeners.

Medieval descriptions of the romantic triad of elements

**ARSENIC
ANTIMONY
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will make the next Classic of Science

PHYSICS

Einstein Develops Quantum Mechanics In Latest Paper

By **DR. R. M. LANGER**, California Institute of Technology, Science Service Correspondent.

PROF. ALBERT EINSTEIN'S first paper on the new quantum mechanics is soon to appear under the title: "Semivectors and Spinors."

He has just allowed his colleagues in theoretical physics at the California Institute of Technology at Pasadena, Calif., to have an advance view of some of the ideas contained in this forthcoming paper, which will be published in the *Proceedings of the Prussian Academy* at Berlin, with Dr. Walter Mayer as collaborating author.

Prof. Einstein is careful to explain that most of the results had already been discovered by other workers. But he wrote the forthcoming paper at the request of his friend, Prof. Paul Ehrenfest of Leiden, to clarify this little known subject.

His discussion with the theoretical physicists was, of course, technical. To make it easier for his American listeners Einstein spoke English. This is the first extended discussion he has delivered in English. Usually he chooses to use German in order to express himself more precisely and clearly. His English is, however, quite good.

Semivectors are related to vectors in somewhat the way that imaginary numbers are related to real numbers. The spinors are restricted semivectors. The vector concept is fundamental in relativity because it enables one to avoid

irrelevancies. Thus it helps discover new laws.

The semivector may suggest new physical laws also for it has the same simplifying properties as the vector. As in the case of the vector, the semivector can furnish tensors. The famous equations of Lorentz can be written for semivectors but no important change is involved. The Dirac equation for an electron can be derived in an elegant manner but Prof. Einstein pointed out that it was not the simplest case of its type.

He said it would be interesting to study the simplest case. Then he went on to say that semivectors could be used to advantage in generalized relativity, but that unlike vectors they led to complicated equations.

When Prof. Richard C. Tolman, of the California Institute of Technology, asked for a physical description of a semivector, Prof. Einstein confessed he had been unable to think of any geometrical or physical picture but added that with mathematical analysis the subject could be handled with great ease.

Science News Letter, February 11, 1933

ANTHROPOLOGY

Chinless Skeleton Puzzles Scientists

AT LEAST one of Palestine's earliest known cave men had no chin. A cabled report to Dr. George Grant MacCurdy of Yale University, from Palestine, where archaeologists are excavating remains of ancient man, springs this new surprise regarding Palestine's inhabitants of the Old Stone Age.

A skeleton found in the Cave of the Oven, near Mt. Carmel, has been removed from its stone matrix. Instead of having the well-developed chin that has been ascribed to early Palestine cave men, this skeleton reveals the receding, chinless jaw typical of men of that time in Europe.

The report is from Miss Dorothy Garrod, of the expedition of the American School of Prehistoric Research and the British School of Archaeology.

Altogether, ten skeletons of Palestine men have been unearthed in caves near

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Mt. Carmel in the past year by the expedition. The type has been judged so different from contemporary Neandertal race of European countries that Sir Arthur Keith, British anthropologist, called it a new race of man, and suggested the name *Paleoanthropus palestinus*, or the Old Man of Palestine.

The new development in the situation may mean one of two things, Dr. MacCurdy said:

First, that the Neandertal race at a given time and place was subject to a greater physical variation than has been supposed.

Second, that the nine skeletons discovered last year by Theodore McCown of the expedition will be found, when they are completely detached from their stony matrix, to have chins that are more receding than their appearance, partly obscured as yet, has indicated.

It will be some time before all the evidence is available, Dr. MacCurdy commented, but it may be assumed that all ten will find a place in the species hitherto known as *Homo neandertalensis*.

Science News Letter, February 11, 1933

ELECTRICITY

Yellow Sodium Light Effective Outdoors

See Front Cover

A COMMERCIAL application has been found for the extremely efficient sodium vapor lamp. A highway in Holland is now illuminated with these light units giving off an intense yellow glow; and this light, that makes color discrimination impossible and is devastating to Milady's make-up, is said to be specially desirable for outdoor illumination. The monochromatic character of the light apparently assists vision at the low intensities which prevail out of doors.

While this application is being pushed, sodium lamps will also prove more valuable in chemical laboratories where monochromatic light is required for analytical work, Ward Harrison, director of engineering at Nela Park, Cleveland, General Electric Lamp headquarters, believes.

The front cover pictures a sodium vapor lamp set up for test in a spherical photometer.

Mr. Harrison, writing in *Electrical World*, said that it does not appear that the efficiency of sodium lamps will offset their inherent high cost except in sizes of 100 watts or more.

Science News Letter, February 11, 1933

ECONOMICS-ENGINEERING

No Stocks, Bonds Or Debts Under Rule of Technologists

Abolition of "Absentee Ownership" Would Usher in New Order of Society, Pioneer Veblen Thought

This is the third article of a series presented to illuminate the backgrounds and objectives of the movement that has found expression in the discussion of Technocracy. The material is given as information and news, not as our opinion or with our endorsement. The next article will describe the practical steps toward rule by Technocracy, as proposed by Veblen.

THE "DISALLOWANCE of absentee ownership" is the key action that would usher in the rule by technology that was outlined by Thorstein Veblen, economist, in his 1919 memorandum on a "soviet of technicians." Some see in his suggestions a plan for the eventual control of the nation by "technocrats."

In its elements, Veblen contended, the "revolutionary overturn" of the established order will be of the simplest and most matter-of-fact character, although there will doubtless be many intricate adjustments to be made in detail.

From the abolition of absentee ownership, which Veblen called "an institution which has, in the course of time and change, proved to be noxious to the common good," the rest of the new industrial order would follow.

Mines, railroads, land, natural resources in general, factories, stocks, bonds, banks, stores, manufactured goods, etc. would revert to the ownership of the technology-ruled community under the Veblen plan. Veblen wrote:

Absentee Ownership Defined

"By absentee ownership is here to be understood the ownership of an industrially useful article by a person or persons who are not habitually employed in the industrial use of it. In this connection, office work of a commercial nature is not rated as industrial employment.

"A corollary of some breadth follows immediately, although it is so obvious an implication of the main proposition that it should scarcely need explicit statement: An owner who is employed in the industrial use of a given parcel

of property owned by him, will still be an absentee owner,' within the meaning of the term, in case he is not the only person habitually employed in its use.

"A further corollary follows, perhaps less obvious at first sight, but no less convincing on closer attention to the sense of the terms employed: Collective ownership, of the corporate form, that is to say ownership by a collectivity instituted ad hoc, also falls away as being unavoidably absentee ownership, within the meaning of the term. It will be noted that all this does not touch joint ownership of property held in undivided interest by a household group and made use of by the members of the household conjointly. It is only in so far as the household is possessed of useful property not made use of by its members, or not made use of without hired help, that its ownership of such property falls within the meaning of the term, absentee ownership.

Private Wealth Doomed

"To be sufficiently explicit, it may be added that the cancelment of absentee ownership as here understood will apply indiscriminately to all industrially useful objects, whether realty or personalty, whether natural resources, equipment, banking capital, or wrought goods in stock."

An immediate consequence of the abolition of absentee ownership seen by Veblen is that industrially useful articles would cease to be used for purposes of private gain. The inducement to private accumulation of wealth at the cost of the community would virtually fall away. Legally the disallowance of absentee ownership would take the form of the cancellation of all corporation securities, articles of partnership, evidences of debt and other legal instruments which now give title to property not in hand and not in use by the owner.

Veblen realized that this might be called subversive and revolutionary but he pointed out that "all of it would neither subvert nor derange any sub-