leisure and better opportunities for its enjoyment. The new inventions add to the comfort and pleasure, health and wealth of the community. If a perfect balance could be maintained between the two, there would be employment for all, with a continual increase in the comfort and dignity of life. But, as I see it, troubles are bound to arise if the balance is not maintained, and a steady flow of labor-saving devices, with no accompanying steady flow of new industries to absorb the labor they displace, can not but lead to unemployment and chaos in the field of labor. At present we have a want of balance resulting in unemployment, so that our great need at the moment is for industry-making discoveries. Let us remember Faraday's electromagnetic induction, Maxwell's Hertzian waves, and the Otto cycle—each of which has provided employment for millions of men. And, although it is an old story, let us also remember that the economic value of the work of one scientist alone, Edison, has been estimated at three thousand million pounds.

Unhappily, no amount of planning can arrange a perfect balance. For as the wind bloweth where it listeth, so no one can control the direction in which science will advance; the investigator in pure science does not know himself whether his researches will result in a mere labor-saving device or a new industry. He only knows that if all science were throttled down, neither would result; the community would become crystallized in its present state, with nothing to do but watch its population increase, and shiver as it waited for the famine, pestilence or war which must inevitably come to restore the balance between food and mouths, land and population.

Is it not better to press on in our efforts to secure more wealth and leisure and dignity of life for our own and future generations, even though we risk a glorious failure, rather than accept inglorious failure by perpetuating our present conditions, in which these advantages are the exception rather than the rule? Shall we not risk the fate of that over-ambitious scientist Icarus, rather than resign ourselves without an effort to the fate which has befallen the bees and ants? Such are the questions I would put to those who maintain that science is harmful to the race.

SCIENTIFIC EVENTS

THE SIXTH INTERNATIONAL BOTANICAL CONGRESS

THE Organizing Committee of the Sixth International Botanical Congress, meeting in Amsterdam, from September 2 to 7, 1935, announces that the following topics have been chosen tentatively for discussion in the sections:

Agronomy. Interactions between roots and soil; interactions between plants. Virus diseases. Weed flora as an indicator of soil conditions in agriculture. Grassland associations. Genetics and breeding of immune varieties. Inbreeding. Importance of microbiological investigations in the study of agricultural problems. Influencing the cycle of development in plants.

Cytology. Structure of chromosomes. Crossing-over versus conversion. Terminology of cytology and genetics. Pairing of chromosomes in polyploids. Reduction division in fungi. Chain- and ring-formation of chromosomes. Submicroscopical structure of the cell wall. Vacuome, chondriome, plastids. Colloid chemistry of protoplasm; vital staining.

Genetics. Experimental mutations. Genetical basis of size and form. Crossing-over versus conversion. Terminology of cytology and genetics. Sexuality in fungi. Reduction division in fungi. Genetics and breeding of immune varieties. Inbreeding. Taxonomy and genetics. Plasm and genotype in their mutual relations. Lethal factors.

Geobotany, Ecology and Phytogeography. Climax associations in Northwestern Europe and North America. Cartography: vegetation maps; area maps. Flora and vegetation area. Plant geography in younger formations. The halophyte problem. Classification and nomenclature of vegetation units. Miscellaneous papers.

Morphology and Anatomy. Size and form. Genetical basis of size and form. Phyto hormones; general paper. Leaf arrangements. Flower morphology. Female fructification and phylogeny of Conifers. Wood anatomy. Relations between anatomy and external morphology. Morphology of Bryophytes.

Mycology and Bacteriology. Differential characters in Hymenomycetes. Nomenclature of fungi. Sexuality in fungi. Reduction division in fungi. Biologic forms of fungi. Importance of microbiological investigations in the study of agricultural problems. Phylogeny and taxonomy of Phycomycetes.

Phytopathology. Biological basis of plant quarantine. Virus diseases. Various papers. Biologic forms of fungi. Immunization. Physiologic diseases.

Paleobotany. Geobotanical provinces in the older formations. Caytoniales and Pteridospermae and the evolution of Angiosperms. Flower morphology. Plant geography in younger formations. Synchronism and uniformity in paleozoic and mesozoic floras. Various papers.

Plant Physiology. Photosynthesis. Phyto hormones; general paper. Phyto hormones; various papers. Oxidation, reduction and metabolism. Permeability and the accumulation of mineral elements. Submicroscopical structure of the cell wall. Translocation of plastic materials. Influencing the cycle of development in plants.

Taxonomy and Nomenclature. Various papers. Cay-

toniales and Pteridospermae and the evolution of Angiosperms. Flower morphology. Female fructification and phylogeny of Conifers. Taxonomy and genetics. Phylogeny and taxonomy of Phycomycetes.

ECONOMICS AND THE SOCIAL SCIENCES AT THE MASSACHUSETTS INSTITUTE OF TECHNOLOGY

A NEW departure in technological training to meet a growing demand for engineers with a thorough understanding of the social and economic implications of their profession has been announced by President Karl T. Compton, of the Massachusetts Institute of Technology. The institute will offer a new five-year course which will include advanced studies in the social sciences and economics. This course, which in no way affects the regular four-year courses in science and engineering, has been approved by the faculty and the corporation. It will be offered next autumn in nearly all the professional fields of the curriculum.

In the announcement Dr. Compton says:

> The new course will include essentially the same professional studies as at present in any one of the departments of engineering or science, but will also include an increasing program of more advanced studies in the fields of economics and the social sciences running through the last three years of the five-year course. In the fifth year a considerable amount of time will be devoted to a thesis on some subject which combines the professional and economic aspects of the problem which is chosen. On satisfactory completion of the fifth year there will be awarded the degree of bachelor of science in the professional field, such as civil or electrical or mechanical engineering, or chemistry or physics or biology, and also the degree of master of science in economics and engineering.
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> It was General Francis A. Walker, as former president of the Massachusetts Institute of Technology, who first had a clear vision of the coming economic importance of the engineer's work and reduced this vision to practise by the introduction of economic studies into the regular program of professional training at this institution. Later, under the influence of Professor Davis R. Dewey, an offshoot of this work in economics developed into the present important and flourishing department of business and engineering administration.
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> It is our conviction that the five-year course now being established represents another important step in the training of men in applied science, with a realization of the social implications of their work. It will constitute an introduction to the ideas and techniques through which the social and economic effects of engineering are woven into the complex pattern of our present civilization.

THE BELTSVILLE RESEARCH CENTER

SECRETARY WALLACE has formally designated the field activities at Beltsville and at Bell, Md., as the "Beltsville Research Center of the Department of Agriculture" and has named Dr. E. N. Bressman as temporary director. This action brings together under one administrative head most of the field activities of the department in the vicinity of Washington. It is planned to develop the Beltsville Research Center, comprising about 4,500 acres, about 15 miles northeast of Washington, as the principal experimental area under control of the department and as the largest and most completely equipped plant for the scientific study of agriculture in this country.

Already ten bureaus of the department are conducting or are definitely planning activities in this area. The policy of the department will be to continue concentrating all the field work of this nature at Beltsville. The new center will be organized to control the whole area and will include the plant introduction garden at Bell.

Buildings have been erected during the last year or two, both as a part of the regular program of the department and more recently under several emergency funds for stimulating employment. Additional buildings will be required to house activities that will be shifted to this area as conditions make the moves desirable.

The director of the center will represent both the secretary and the chiefs of the various bureaus engaged in work at the center. He is charged with "continued development and coordination of the Research Center on a comprehensive and orderly plan," and will have custody of and control the assignment of lands, building equipment to promote efficient use of facilities for maximum service and economy of operation of the center as a whole.

The ten bureaus now assigned to conduct work in this area are: the Bureaus of Animal Industry, Plant Industry, Dairy Industry, Agricultural Engineering, Entomology and Plant Quarantine, Chemistry and Soils, Agricultural Economics and Biological Survey, and the Food and Drug Administration and the Forest Service. Other departments of the government also have some activities at the research center. It is planned ultimately to move to Beltsville many of the activities which have been under way at the Arlington Experimental Farm just south of Washington.

Starting years ago primarily as a farm where the Bureau of Animal Industry could keep animals required for its research, the area has developed because in one line of work after another the need has been felt to take the laboratory to the field. For practical value, too, the concentration of varied lines of research in one area is desirable because it runs more nearly parallel to farm experience where crops are planned as feed for animals. Research at Beltsville in genetics and in long-term programs of breeding for improvement of beef and dairy cattle, swine, sheep