along one of the moving axes; furthermore, all components of relative velocity, northward, eastward, or upward (and their opposites) give rise to these forces. Dr. Hering's argument from the varying centrifugal force due to the east and west motion of a particle brings to light the gyroscopic forces due to the east-and-west components of velocity, but it does not tell the whole story. Vertical components, and horizontal components in the meridian must also be allowed for.

There is nothing very new in the results stated above. Problems of moving axes and the effect of the earth's rotation are treated in much detail in advanced treatises like Routh's "Rigid Dynamics." The equations of motion for these cases can be conveniently ground out by Lagrange's method, but it is always interesting and instructive to obtain each term in the result directly, and to examine its geometrical and mechanical meaning.

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QUOTATIONS

FEDERATIONS OF BRAIN WORKERS

In the discussion on the better adjustment of the relations between employers and employed which have occupied so much space in the public press during the last year or so attention has been almost exclusively directed to the relations of industrial employers and manual workers. The interests of other classes of persons whose work is essential to industry have been almost ignored, although the Labor Party has declared its willingness to accept recruits from among brain workers. At the industrial conference summoned by the Prime Minister last April employers' associations and trade unions considered a proposal for a joint industrial council, and the Society of Technical Engineers at this conference moved an instruction to the council, when it should come into existence, to consider the position of unions composed exclusively of members of technical, management, and administrative grades, and to determine how such unions should be represented on the council. The industrial council has not yet come into existence, but meanwhile the Labor Research Department has been making inquiries into the position of professional classes in relation to the labor movement, and at a meeting in London on February 7, a National Federation of Professional, Technical, Administrative, and Supervisory Workers was formed. The bodies represented at this conference included the Civil Servants Union, the Association of Local Government Board Officers, the National Union of Clerks, the National Federation of Law Clerks, the National Union of Journalists, representatives of scientific, technical, engineering, and chemical workers, together with the Actors' Association and the National Orchestral Association. A representative of the Labor Research Department said that it was not proposed that the Federation should affiliate with the Labor Party or the Trade Union Congress. Among the professions invited to join the new Federation medicine and the law are not included. It appears, however, that for some months past certain technical and scientific professional workers have been taking steps to form themselves into a confederation, and that representatives of these bodies and several others, after full discussion, have prepared a memorandum proposing that the various societies concerned should be formed into an industrial group, a financial group, a group for the public services, and a group for the other professions. Each group would form a federation, and the four would be combined into a confederation for which draft rules are being prepared. The General Secretary of the Society of Technical Engineers last week published a long letter on the subject in *The Times*, in the course of which he observed that the assumption that a salaried official must ally himself either with the employers or with the work-people ought not to be accepted without further investigation. The position of medicine and the law are similar to each other and differ fundamentally from that of the intellectual workers represented by such bodies as the Society of Technical Engineers. The medical profession

will be disposed to watch with sympathetic interest the movement for a federation of scientific and technical workers; but until their plans are more fully known it will be premature to say that medicine should have any direct concern.—*British Medical Journal.*

SCIENTIFIC BOOKS

The Productivity of Invertebrate Fish Food on the Bottom of Oneida Lake, with Special Reference to Mollusks. By FRANK COLLINS BAKER. Technical Publication No. 9, New York State College of Forestry at Syracuse University, Syracuse, N. Y. 1918. Pp. 233, Figs. 44.

This valuable contribution to the general subject of limnology is based upon a numerical study of the bottom fauna of a portion of Oneida Lake, New York, which was made during the month of July, 1916. Lower South Bay and two smaller areas, all at the southwestern corner of the lake, were covered in the survey; they constitute an area of 1,164 acres, or a little less than two square miles out of a total lake surface of about 80 square miles. The maximum depth of the water in the area under consideration is about 19 feet as compared with a maximum of 55 feet for the entire lake.

In the area covered by this survey the greatest development of plant and animal life was found in the zone extending from the shoreline out to the six-foot contour line. Numerically, about 88 per cent. of the invertebrate animals were obtained in this area. The second zone lay between the six-foot and the twelve-foot contour lines and the population of this belt was very much smaller than in the first zone. A still further decline in the density of the population was noted between the twelve-foot and the eighteen-foot contour lines, which constituted the third zone.

Various types of bottom were found in the area studied, ranging from boulders to clay and mud. Of those represented, the sand bottom was richest in animal life while the boulder bottom was poorest.

A classification of the animals on the basis of their feeding habits showed that herbivorous and detritus feeders greatly predominated over the carnivorous forms; the latter, in fact, constituted only 0.29 per cent. of the total population. Of the various groups of animals represented, the mollusks yielded a much larger number of individuals than any other group; they even exceeded in numbers all of the associated animals combined.

CHANCEY JUDAY

MADISON, WISCONSIN

SPECIAL ARTICLES

THE ANTISCORBUTIC PROPERTY OF DEHYDRATED MEAT

THE present conception of a perfect diet demands that the intake contain adequate proteins, sufficient fats, carbohydrates, inorganic salts, bulk, and the three vitamines designated as water-soluble B, fat-soluble A, and antiscorbutic. For some time we have used to produce experimental scurvy in guinea-pigs a combination which meets all of these requirements except that of the antiscorbutic vitamine. A mixture of soy bean flour, whole milk, dried yeast, paper pulp, sodium chloride and calcium lactate is dried down into a cake.[1] This is fed as the basal ration supplemented with a definite amount of the product whose antiscorbutic potency it is desired to determine. By this procedure we have demonstrated that dried cabbage,[1] dehydrated tomatoes[2] and desiccated orange juice[3] retain some of their original content of antiscrobutic vitamine.

The indications are that each foodstuff ought to be studied individually. Meat being one of the most staple articles of our dietaries it has therefore seemed highly important to determine if it retains any antiscorbutic potency after drying.

Stefansson[4] states that "the strongest anti-

[1] Givens, M. H., and Cohen, B., *J. Biol. Chem.*, 1918, 36, 127.

[2] Givens, M. H., and McClugage, H. B., *J. Biol. Chem.*, 1918, 37, 253.

[3] Givens, M. H., and McClugage, H. B., *Am. J. Dis. Chil.*, 1919, 18, 30.

[4] Stefansson, V., *J. A. M. A.*, 1918, 71, 1715.