An empirical formula based on these values is

$$C_{30}H_{54}O_{18}N_5P$$

We have found organic phosphorus in commercially available distillery slops concentrates which would seem to confirm the belief that the above compound is essentially a yeast product.

F. W. ZERBAN
THE NEW YORK SUGAR TRADE LABORATORY
LOUIS SATTLER
BROOKLYN COLLEGE

CONTRACT BETWEEN THE SHELL DEVELOPMENT COMPANY AND THE CONGRESS OF INDUSTRIAL ORGANIZATIONS

A SATISFACTORY contract has been consummated between the Shell Development Company, Emeryville, California, and the Federation of Architects, Engineers, Chemists and Technicians (CIO) (Chapter 25). The contract was signed on May 25, 1942, at the conclusion of a mediation hearing in Oakland before Paul A. Dodd, public associate member of the National War Labor Board and professor of economics at the University of California at Los Angeles.

The following statement was given by Mr. J. F. M. Taylor, president of the company, and Mr. Marcel Scherer, international vice-president of the Federation of Architects, Engineers, Chemists and Technicians:

> The signing of a collective bargaining contract indicates remarkable progress in collective bargaining in this field. We look forward to setting high standards in labor-management relations which will result in furthering Shell Development's contribution to the war effort.

Some 275 laboratory, engineering and pilot plant technicians of the company will benefit from this agreement, which establishes a contractual basis for hours, working conditions and wages. The company recognizes the federation as the sole bargaining agent for the employes covered by the contract.

The contract provides for promotions based on merit, layoffs based on seniority, and time-and-one-half payment for required overtime work. Employees are protected against arbitrary discharge. In cases of dismissals for general inefficiency or low standards of work, warnings are given a reasonable period in advance in order to afford the employee an opportunity to correct them. A clause on hiring states that no person shall be discriminated against because of race, color, creed, nationality, sex or religious belief. Among the economic benefits gained under the terms of this contract is the acceleration of the rate of advancement within the existing wage scales. The agreement contains a maintenance of membership clause whereby the company recognizes the obligation of employees who are now members or may become members of the Federation of Architects, Engineers, Chemists and Technicians, to maintain themselves in good standing in the union for the duration of the contract.

The outstanding and unique feature of the agreement is the inauguration of a patent bonus plan, the benefits of which will be shared equally by all employees of the company. This plan will undoubtedly stimulate inventions among the employees and thus contribute largely to the war effort.

At the conclusion of the hearing Professor Dodd stated:

> Because of the high intelligence and education of the negotiators on both sides of the table, it has struck me that this case is one of the most unusual cases to come before the War Labor Board. I am sure that the enlightened spirit which has prevailed at this conference table will be continued with a resulting satisfactory bargaining relationship.

DAVID E. ADELSON

THE STATURE OF MEN

IN the May 22, 1942, issue of SCIENCE there appeared a communication (on page 529) from S. L. Calhoun, of Leland, Mississippi, mildly scolding a collaborator and myself for our promulgation of a "false hypothesis." This correspondent writes in part as follows:

> Recent articles in SCIENCE have left the reader with a certain amount of skepticism as well as a large amount of thought-provoking data.
>
> In the December 12 issue of SCIENCE (Vol. 94, No. 2450, pp. 552–553) Leonard R. Rowntree gives an average height of over 2,000,000 registrants examined as 67½ inches, the identical average of men in World War I. An increase in weight of eight pounds was shown.

Your correspondent then goes on to cite an article written by Richard G. Canning and myself which appeared originally in *Human Biology,* Vol. 13, No. 4, pp. 533–540, December, 1941, and which was discussed in SCIENCE, Vol. 95, No. 2454, *Supplement,* p. 13, January 13, 1942. We had shown that freshmen in the University of Cincinnati had increased over two inches in average height from 1916 to 1936. We had generalized from our data that men were getting taller. It seems that we had no right to do this, for your correspondent says:

> These observations would lead one to conclude that childhood care and advantages, which result in increased growth, are much greater for those students in the University of Cincinnati than for the United States as a whole, and that any conclusions drawn by Chenoweth and Canning should be confined and not generalized.

I think the explanation of the difficulty is a simple one. I have before me Medical Statistics Bulletin No. 1, National Headquarters, Selective Service Sys-

tem, Washington, D. C., November 10, 1941. This bulletin was prepared by Lieutenant Oliver Harold Folk, chief, Medical Statistics Section, Research and Statistics Division, under the direction of Mr. Kenneth H. McGill, assistant chief, Research and Statistics Division, and in cooperation with Colonel Leonard George Rowntree, M.C., Res., chief, Medical Division. On page six there appears this statement:

> The average height of the registrants examined (by local draft boards) was 67.5 inches, the average weight 150 pounds and the average chest measurement at expiration was 33.9 inches. Registrants who were classed by local boards as available for general military service averaged 68.1 inches in height and weighed 152 pounds.

On page eight of this report there also appears this statement:

> While many obvious reasons make direct comparisons with data compiled in previous emergencies impossible, it is interesting to note that the average height of recruits examined during World War I was 67.5 inches, the average weight was 142 pounds, and the average chest measurement at expiration was 33.2 inches.

What happened in Colonel Rowntree's analysis was, I think, that he had compared (1) a group of 2,000,000 men examined by draft boards in World War II with (2) *recruits,* or the men accepted by the army for military service in World War I. It must be remembered that all those less than 64 inches are not eligible for military service and were probably excluded from group (2) above, but were included in group (1). Hence we do not have here two comparable groups. The reason I feel this to be true is that the report specifically stated that *recruits* were 67.5 inches tall and recruits, according to army definition, are men *accepted* for military service who have not been assigned to a specific duty. It is quite true that men over 78 inches tall were also rejected, but every one knows that there are many more under 64 inches than over 78 inches.

You will notice from the report that, "Registrants who were classed by local boards as available for general military service averaged 68.1 inches in height. . . ." I have an idea that when the army reexamined these "registrants" and made "recruits" of them the average height of the latter increased some more. When the final figures are released I shall be surprised if we do not learn that the soldier in the Army of the United States in this present war is about one inch taller than his father was in World War I, provided the standards of height remain the same for both wars.

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SCIENTIFIC BOOKS

THE LYMPHATIC SYSTEM

Lane Medical Lectures: The Lymphatic System. Its Part in Regulating Composition and Volume of Tissue Fluid. By CECIL K. DRINKER, professor of physiology and dean of the School of Public Health, Harvard University. 101 pages; 29 illustrations. Stanford University Publications, University Series. Medical Sciences, Volume IV, No. 2. California: Stanford University Press, Stanford University. London: Oxford University Press, Humphrey Milford. 1942. Paper, $1.50; cloth, $2.25.

DESERVING a place as a medical classic beside Sir Michael Foster's Lane Medical Lectures on the "History of Physiology," published 42 years ago, are Dr. Cecil K. Drinker's lectures on "The Lymphatic System," for these few pages offer a most significant general account of the system.

All the five lectures are based on one theme—how do the blood capillaries and the lymphatic capillaries cooperate to produce the environment necessary for the life of every single cell in the animal body? For this function, Dr. Drinker finds that there are five essential features of the vascular system in mammals.

1. A closed system of blood capillaries with endothelial walls of varied permeability but capable of retaining practically all of the blood plasma during the usual conditions of rapid capillary transit.
2. A variable hydrostatic pressure in the capillaries.
3. A mixture of extracellular non-respiratory proteins in the blood to which the capillary endothelium is somewhat permeable.
4. An extravascular tissue fluid, lower than the blood plasma in content of blood proteins but in other respects practically identical with plasma.
5. A system of closed lymphatic capillaries with extremely permeable endothelial walls, which lacks any inherent propulsive mechanism to move lymph into larger valved vessels but is dependent upon inconstant and extraneous forces, such as those of muscular activity or massage, to cause entrance of fluid, cells, and particles into lymphatic capillaries and eventual flow of lymph back to the blood.

In the light of these characteristics which, in their entirety, are limited to the blood and lymph vessels of mammals, Dr. Drinker follows the changes in the environment of cells, from the very simplest forms for which sea water constitutes the external environment, through one shift or another in the animal kingdom—not in any sense through an orderly progression