connection with our professional institutions, and generally so accurately descriptive, that no other term seems necessary. Furthermore, many so-called academies fall so far short of Plato's model that the words college and university seem all that are required to-day. Few philosophers will disagree with President Lowell's statement that America has failed to contribute its share to the world's thought.

But no one of these institutions should be without at least one philosopher apiece, for of such is the family of goats.

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PACHYOSTOSIS

THE term *Pachyostosis* to denote a benign type of osteohypertrophy, especially in aquatic animals, was first clearly discussed by O. Abel in his "Paleobiologie." It is interesting to note the animated discussion of the possible phylogenetic significance of this condition at the meeting of the German Paleontological Society at Tübingen in August of last year. The subject arose following the reading of Nopsca's paper[1] on the osteology of a Cretaceous snake. Baron Nopsca proposes the unusual term *Arrostie* for the condition of Pachyostosis, but spoils it by including in his classification such diverse pathological conditions as Osteosclerosis, Acromegaly and later some one proposed to include in it the condition known as Osteoporosis. This conception seems to me to be quite wrong, and I wish to add this word to the discussion.

It seems to me that the new term Arrostie is unnecessary and misleading. It implies a combination of conditions which does not exist. Pachyostosis, as I understand it, does not involve either infections or other pathological results, but is to be regarded as an adaptation in vertebrates to an aquatic habitat. The hypertrophy is a condition largely of the ribs and vertebrae, and while it may sometimes be due to the presence of heavy dorsal armor, yet more frequently it seems to me the thickening of the bones is an adaptation, permitting the animal to submerge more readily and to remain under the surface. Osteosclerosis is not an accompaniment of the pachyostosis in the few histological examinations of pachyostotic bones I have made. The unorganized deposition of calcium salts in callus following fracture, and in areas of intensely rapid growth stimulated by infection constitute a condition of osteosclerosis far removed from any interpretation of pachyostosis. I have recently noted in a Pleistocene tiger a condition in the pelvis resembling in its great and uniform hypertrophy of both rami the heaviness seen in Pachyostosis. This was due, clearly, to the intense infection the results of which are evident in the sacrum, where the most posterior sacral element is greatly exaggerated in size.

It would seem unwise to include under the same classification such diverse hypertrophies as acromegaly, osteosclerosis and the absorptive process of osteoporosis. In fact, osteoporosis accompanies a number of pathological conditions, though the term has been somewhat restricted in Paleopathology to a condition described in the human skull in which the hypertrophy is accompanied by a riddling of the inner skull table. Pachyostosis is also to be distinguished from many types of osteitis deformans, such as Paget's disease, Leontiasis and other hypertrophies which are due either to infections, disturbances in the endocrine organs, faulty nutrition or other causes.

It is even to be doubted if the thickening of the bones in aquatic animals is to be properly regarded as a phase of pathology in any sense, unless we give the widest latitude to our definition of disease. I should like to suggest, therefore, that we differentiate carefully between results of adaptation and pathological results. Pachyostosis is a benign form of hypertrophy and has no relation, in my opinion, to other hypertrophies of a pathological nature.

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[1] F. Baron Nopsca: "Ueber eine neue Kreideschlange aus Dalmatien." *Paleontologische Zeitschrift*, Bd. V, Heft 3, p. 258. 1923.

QUOTATIONS

CONTRACT MEDICAL PRACTICE IN ENGLAND

THE minister of health has answered the doctors in terms of arithmetic. He conceives that, in the final issue, an actuarial basis is that on which the capitation fee for panel practice, in company with all salaries and wages, must rest. In this view he has, without doubt, the full support of the friendly societies, whose members constitute the working population of the country. These societies, in their attitude to the medical profession, have discovered themselves as economists of the old school. A man's value, they suggest, is the amount which his services can command in the open market. This doctrine, when applied to the members of the friendly societies themselves, has not, it must be allowed, always worn, in their eyes, the aspect of reasonableness which it possesses when applied to doctors. Indeed it has frequently been assailed with bitterness as the creed of a rapacious *bourgeoisie* eager to exploit the helplessness of "wage slaves." Unhappily, it is impossible to have it both ways: what is "sauce" for the doctors must be "sauce"

also for their twelve million patients. The friendly societies, in short, have appealed to a law of economics which is certain to be invoked against many of their members in days to come.

The doctors, we understand, are to be advised by their leaders to refuse the terms offered to them, though there is, of course, no question of a "strike," as that term is understood by many of their patients. In other words, they may contest the view of the minister of health and the friendly societies that their value has been correctly assessed. Their right to enter on such a struggle will scarcely be disputed. They have declared that a willing and efficient service can not be given for a smaller sum than 9s. 6d. per head per year, and no one in his senses desires an unwilling doctor who is professedly incapable of doing justice to the case. On the other hand, it may be that the doctors' arithmetic is less sound than that of Sir William Joynson-Hicks and the friendly societies. This is the real question for the public. The minister of health has made a clear and very detailed statement; it is for the profession of medicine to answer him. If he has erred, if his arguments are not sound, and if, consequently, the capitation fee proposed is not adequate to its purpose, public support will assuredly be with the doctors. If, on the contrary, the case for reduction is a good one, the doctors will begin their battle at a disadvantage.

It is, however, possible that the doctors may decide to have done with the panel system altogether on other than financial grounds. It is admittedly rather late in the day to make such a change, yet there are and always have been weighty objections to the present system of contract practice. If it is to degenerate, as seems now to be possible, into the control of a learned profession by a group of benefit societies, the objections to it will be enormously enhanced. A doctor can not lose his freedom of action in relation to his patients and at the same time retain his self-respect. He may not suffer dictation in the conduct of his practice; if his patients object to his methods they possess their own remedy. It is, of course, possible that, if resignations from the panel occur, the vacant places may be filled. But we believe that this contingency should not be suffered to bias the minds of those physicians who, whether rightly or wrongly, regard the present situation as intolerable. The public will always hold in sincere regard those men who make sacrifice for the public welfare. The decision which the doctors must now take is one of the most important in the history of their profession in this country. Let them balance all the issues and, putting personal motives aside, act as the good servants of their fellows, which, in past years, they have in the vast majority of instances proved themselves.—London *Times*.

SPECIAL ARTICLES

ON THE INFLUENCE OF A ROTATING MAGNETIC FIELD UPON GROWTH

WHETHER magnetism has any effect upon biological activities has long been a source of speculation and experimentation. The types of magnetic fields used so far for investigation have been the constant unidirectional field and the alternating field; and the result of these studies has been that the unidirectional field has no physiological effect, while the alternating field if sufficiently powerful seems to have produced visual sensations.[1]

Because of the newer ideas regarding the constitution of matter, especially with reference to the work of Thomson and of Bohr on the character of the atom, it was decided to apply the magnetic field in a different manner than heretofore. From the premise of Bohr the electrons composing the atom are in a state of stable dynamic equilibrium except during light emission and absorption; and since the electronic orbits are subject to the influence of a magnetic field it was believed that a constant, uniformly rotating magnetic field, rather than a unidirectional or alternating magnetic field, would alter the dynamic equilibrium of the atom by affecting the configuration of the electrons. Based on this hypothesis the possibility existed of changing the character of the atom, thus secondarily affecting the molecule, and thereby causing changes which could possibly be observed in the study of growth.

A constant, uniformly rotating magnetic field was obtained by a three-phase winding upon a uniform iron coil displaced in the usual manner. The coil was operated upon the service of the local power company at a frequency of 62.5 cycles per second. The strength of the field, 1,410 gausses maximum, was measured by a small exploring coil in conjunction with an electrostatic voltmeter. The inside diameter of the coil was 14.25 cm. Care was taken that the field within the coil was not distorted by the presence of iron.

The first observations were made on the rainbow trout (*Salmo irideus*). In the center of the coil eighty eggs of this species were placed in a glass vessel on a single layer of gauze through a constant stream of water passed continuously from below. A similar vessel containing the same number of eggs and situated two feet from the coil was used as a control. But since this receptacle was separated from the coil by a piece of sheet-iron one eighth of an inch thick, the magnetic field in the control area was reduced virtually to zero. The magnetic field was applied con-

[1] Drinker, C. K. and Thomson, R. M., "Does the magnetic field constitute an industrial hazard"? *Jour. Indust. Hygiene*, 1921, III, 117.