were eliminated. Three hundred and twenty-nine of the failures were in New York and Massachusetts. The remaining 291 failures were in other states, giving averages of 19.9 per cent. for the former and 4.0 per cent. for the latter states. With an average failure of 7 per hundred candidates, it was necessary to have a sample of 200 candidates for statistical analysis. Only 15 schools had as many as 200 candidates examined by other than the local state boards. The 15 schools were listed in the order of their percentage failures on state boards, alongside of the number of papers published in the thirty-six most quoted medical journals for the period March, 1932, to March, 1934 (Table II). It will be seen that a very high inverse correlation existed between the percentage of failures of the students on state board examinations and the publications of the faculty in leading national journals (Fig. 1). There was no correlation between the

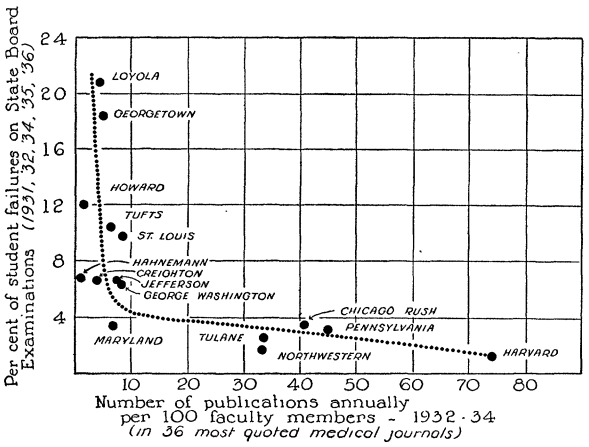

FIG. 1

number of faculty members and the failures on state boards or between the number of faculty members and the scientific output. Less than 20 publications for 100 faculty members in the 36 leading medical journals should be a clear warning to school authorities that all is not well in their school and drastic changes should be instituted. The medical schools in the various state universities generally did not supply a sufficient number of candidates for analysis. Most students from such state schools reside in the state of graduation and are not as likely to take out-of-state medical board examinations. Sufficient time has elapsed so that the standing of the schools to-day need not necessarily be that of 1934. It is believed that the high inverse correlation between the research activity of the faculty and the failures of the students on state boards should be brought to the attention of faculties and administrators.

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ON THE ORIGIN OF THE DOMESTICATION OF THE DOG

EVIDENCE of the domestication of the dog reaches as far back as the Neolithic. In the early Neolithic period the skeletons of dogs are found outside the limits of human habitation sites. In Danish kitchen middens of the Maglemosian phase of culture such skeletons have been found in appreciable numbers within the habitation sites.

Students of the subject have for long been puzzled to find a satisfactory explanation for the original motive or motives which led to the domestication of the dog. It is likely that different motives may have been operative in different human groups. All people are fond of the young of wild animals, and it may well be that this fondness led to the making of a pet out of the puppy of the wild dog, and thus to the domestication of this eminently domesticable animal. An examination, however, of the role played by the dog in different human groups at different levels of cultural development shows that the "pet" motive is not characteristic of all of them, whereas the motive of *use* is. Furthermore, the motive of *use* applies to all domesticated animals, even to the cat, which catches mice, rats, birds and other animals which are likely to be a nuisance. The keeping of pets merely as pets is probably a relatively recent development of civilization.

Of what use then could the dog have been to the men who first domesticated him? The evidence suggests that his first and primary use originally was as a scavenger. The earliest human groups were food-gatherers and hunters, with no agriculture or domestic animals of any sort. Living a semi-nomadic existence in search of food they would occupy a site until the food supply was dangerously diminished, whereupon they would move to another area where food was more abundant. At each of their camps or settlements they would throw the remains of their meals into heaps which often assumed considerable dimensions, depending upon the length of their stay and the numbers in the group. The odor from these middens must often have been quite overpowering. Hence, when it was discovered that the dog was a willing consumer of the left-overs from "kitchen" and "table," who would thus effectively serve to eliminate the intolerable odors which blew in from the refuse heaps, his assistance was permanently enlisted in this worthy task.

This explanation derives some support from the disposition of the skeletal remains of dogs in relation to the kitchen middens and the prehistoric settlements of Europe. But far stronger evidence for this explanation is to be found in the conditions existing among people of a Stone Age culture of to-day. I refer to the Australian aborigines.

In every aboriginal camp large numbers of dogs are to be found, the native dingo and the mongrels resulting from hybridization with the introduced dogs. Since they perform no obvious useful purpose it has always been assumed that their only function was to serve as pets. Reading, recently, W. H. D. Le Souëf's "Wild Life in Australia" (Christchurch, N. Z., and London, 1907), I came across a passage which very probably contains the real explanation of the aboriginal's domestication of the dog. Le Souëf writes:

> I used to wonder why the natives shifted their camp so often, but I don't now, as, although we were only in ours three days, the amount of evil-smelling refuse that the natives had thrown away close to the camp was considerable, and the odour was perceptible on the third day before the camp even came in sight, and being in thick scrub there was not much breeze to carry it off, and flies and ants were attracted in numbers. If we had had several dogs, instead of only one, it might not have been so bad.

Now, in every Australian camp the dogs *do* act as scavengers, but this fact has been overlooked as of no significance. It is only when an observer draws attention to what happens when only *one* dog is present in a small temporary camp, that we can perceive the real importance of the dog in the social life of the individual and of the group.

It is not the stench alone of the decomposing refuse, but the flies and insects and other noxious creatures which this attracts that the dog tends to eliminate, to such an extent indeed that he becomes indispensable. It may be suggested that it was probably the same or a similar complex of reasons that led to the domestication of the dog elsewhere in the world.

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FIRST CASE OF HUMAN INFECTION WITH MESOCESTOIDES

SOME tapeworms recovered from a 13-months old white child at Nacogdoches, East Texas, recently referred to me for identification, were found to belong to a species of Mesocestoides. This constitutes the first record of infection of any Primate with adults of this group of tapeworms. The specimens found conform closely in most respects with a species recently found by the writer[1] in raccoons in East Texas, which were referred to the species *M. variabilis* Mueller, 1927, 1928, previously known from foxes and skunks. Species of Mesocestoides are characteristically found in carnivores and birds of prey, although one species, *M. latus* Mueller (1927, 1928), occurs in opossums and another, *M. corti* Hoeppli (1925), has been reported from the house mouse. The full life history of these tapeworms has not been elucidated; a larval sparganum-like form known as a tetrathyrideum has been found in insectivorous reptiles, birds and small mammals, but it seems probable that there is an earlier larval stage in an arthropod. The human infection, however, was probably derived from eating the improperly cooked flesh of some animal harboring the tetrathyrideum stage.

The worms recovered from the child were stated to total over 35 feet, but individual worms have an estimated length of about 40 cm, with a maximum diameter of less than 2 mm. The child harbored the worms for at least several weeks. She was fretful and anemic, had a poor appetite and complained of abdominal pain. The worms were apparently all expelled after two treatments with oleoresin of Aspidium, and the symptoms disappeared. A fuller report, with a description of the worms, will be published elsewhere.

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[1] A. C. Chandler, *Jour. Parasitol.*, 28, 227–231, 1942.

LAND AND WATER AREAS OF THE UNITED STATES

THE Bureau of the Census has just sent to press a publication which provides the first basic remeasurement of the land and water area of the states and counties of the United States to be released since the work of Henry Gannett in 1881. In addition, for the first time, land and water areas are given for each of the 50,000 civil divisions of the counties, a fact which will provide a per-square-mile density basis for census statistics possessing sixteen times the refinement of comparable county densities.

This publication, which is the product of five years of planning, measurement and verification, employed procedures approved in conferences with the U. S. Coast and Geodetic Survey, the U. S. Geological Survey and the General Land Office. Greatly improved maps made it possible to undertake these remeasurements. This work was based on the 1937 series of the U. S. Coast and Geodetic Survey aeronautical charts on a scale of 1:500,000. The area of the United States by states was computed by using geodetic tables based on the Clarke spheroid of 1866 adjusted to conform to the legal ratio of 39.37 inches to the meter. The areas of all thirty-minute quadrilaterals falling entirely within each state, as given by these tables, were combined with the partial areas of thirty-minute quadrilaterals as determined by planimeter measurement. Counties shown on the U. S. Geological Survey and Post Office Department state maps, on scales of 1:500,000 and 1:750,000, respectively, corrected to conform to 1940 boundary conditions, were measured and adjusted to the state totals computed from the aeronautical charts. For the minor civil division and city areas, the best available