

break down (in specified cases) the exclusive monopoly enjoyed by patentees. The proposed law provides:

"1. That all associations or combinations, either of natural persons or incorporated companies, formed for the purpose of purchasing a patent or patents for any process of reducing iron ore to steel or iron, with the intention of withholding the use thereof from the public or from individuals or associations desiring to use the same, are hereby declared to be unlawful, and any purchase or attempted purchase of any such patented process by any such association or combination for the purpose or with the intention of preventing the use of the same, shall be construed to be an abandonment to the public at large of all exclusive rights under any such patent.

"2. That where any person, association, or incorporated company shall own, or claim to own, any patented process for reducing iron ore to steel or iron, such owner or claimant is hereby required to issue license to use such patent process to any person, association, or corporation who may desire to use the same in the manufacture of iron or steel. Said license shall be granted upon such terms as may be just and reasonable, to be agreed upon, if practicable, with the owners thereof. If a satisfactory agreement cannot be made, the person or association desiring to use said patented process as above set forth, is thereby authorized to apply to any Circuit Court or District Court of the United States where the owner of said patent or any of them resides, or may be served with process, to have the value of such license ascertained by commissioners to be appointed by said court or by empaneling a jury, as either party may elect, to ascertain the value thereof. Such proceedings shall, as near as practicable, conform to the proceedings for the appropriation of private property for public use as are prescribed by the laws of the State wherein the proceedings hereby authorized shall take place.

"When the value of such license thus applied for shall have been ascertained, as herein provided, the court in which such proceedings are conducted shall enter a decree or judgment setting forth the same, and shall direct the manner in which payment for said license shall be made, and shall make such further order in the proceedings as shall duly protect the rights of all the parties thereto. As soon as the party applying for said license shall comply with the orders of the court, he shall be entitled to use said patent process in accordance with said judgment or decree.

"3. Jurisdiction to conduct the foregoing proceedings is hereby conferred upon all circuit and district courts of the United States."

This is a new phase of an old scheme, and, as usual, one palpable, though comparatively small, wrong is made a pretext for legislative action calculated to introduce or open the door for vastly greater wrongs.

Grant that it is an injury to the community to delay or willfully prevent the development of a new and useful invention. Grant that the proposed law would tend to prevent such delays. Has Congress the right to prevent such wrongs in the manner prescribed? Would it be good policy to remedy the evil in that way, the right being clear?

While Congress is constitutionally authorized to shorten or lengthen the lifetime of patents for invention, or to abolish the patent system entirely, the Constitution gives it no authority to provide for the issuing of letters patent for other than the exclusive right to make, vend, and use the thing or process patented. If Congress can make void one class of legally-issued patents for the specified reason, why not all patents that may be withheld from use? If Congress can compel one class of patentees to issue licenses, why not all patentees? By what authority is Congress to enact a special law, a law applicable only to makers of iron and steel?

The trouble with those who desire legislation of this sort arises from the narrowness of their view. Their selfishness is too short-sighted to be wise.

It is obviously a misfortune to have a useful invention withheld for seventeen years; but the misfortune would be vastly greater if the invention were to be absolutely suppressed, kept secret by the inventor to die with him; and greater still if inventors were debarred or discouraged, as they would be under such a law, from trying to make "new and useful inventions."

Seventeen years is but a little time compared with the life of the nation. It is unquestionably desirable that all novel ideas shall be immediately worked out as factors of industrial progress; but the country can better afford to wait a few years for their development than to hurry them by means calculated to hazard their very existence.

The patent system is designed not for the rewarding of inventors, but for the advancement of the useful arts and sciences. That advancement is to be secured primarily by the immediate registration and publication of novel ideas to serve immediately or remotely for the instruction and guidance of all workers in arts to which the new ideas are helpful; secondarily, by giving the patentee a temporary control of his invention, to incite him to make greater efforts and to justify larger expenditures to hasten the practical development of his invention. If the latter incentive fails, and the invention remains unimproved for the full term of the patent, the public is still the gainer. The disadvantages attending the occasional willful holding of a patented invention in abeyance are vastly more than overbalanced by the advantages which flow from the prompt admission of new ideas into the world of creative thought; and ultimately the public enjoys the full and free use of the invention specified. Further, the disadvantages chargeable to patents temporarily

withheld from use are out of comparison with those which would certainly result from an invasion of the patentee's exclusive control of his invention during the lifetime of his patent. The proposed law would at once destroy a large part of the incentive to invention which the patent laws now hold out, and at the same time a large part of the patentee's inducement to spend the money necessary to develop and perfect his invention. Under a license system the inventor's rivals would share all the advantages of his success without having shared any of the preliminary risks and expenditures.

THE ZEBRA WOLF.

BY DR. G. A. STOCKWELL.

Of all the mammalia, none possess so much that is interesting and peculiar as the so-called marsupials or pouched animals; and excepting the opossums, strange to say, this class is confined exclusively to Australia, Tasmania, and the isles of the Papuan group. With kangaroos, petauristes, wombats, and "ursine devils," we are more or less familiar, through the mediumship of zoological gardens, traveling menageries, and the writings of accredited travelers; but the Tasmanian or zebra wolf is almost unknown, and so far as the writer has been able to discover has been exhibited in captivity only in a single instance. Two specimens were obtained by the Royal Zoological Gardens of London, England, but quickly died, pining away through confinement, and, perhaps, disease brought on by a two months' sea voyage and change in climate.

The peculiar modification of the nutrient organs that has given rise to the title *marsupial* (from *marsupium*, a pouch), is the peculiar sac provided the females for the protection of their immature young. This is developed in a greater or less degree in each species, but may easily be studied in our common or Virginian opossum, whose chief place in the world seems to be to provide Sambo or Cuffy the material for a Christmas dinner, peculiarly his own. Mind you, I do not decry its edible qualities, but would merely suggest its being far more interesting under the dissecting knife than at the festal board. Examination reveals the pouch to be supported by two elongated bones that project, or are rather prolonged, from the crest of the hip, and which lie just beneath the skin and in the same general plane with the back; and within this pouch are concealed the breasts or mammae.

When the young marsupial is first ushered into the world it is a tiny and helpless being, of such minute size as to be out of all proportion to its parent; even the young of the bush kangaroo, an animal nearly or quite as large as our common deer, being scarcely larger than newlyborn rats; and they are blind, naked, and even incapable of voluntary movement. As quickly as born the youngling is seized by the lips of the mother and at once conveyed to the interior of her pouch, meantime held open for its reception by her forepaws, and placed upon the breast, to which it at once clings instinctively, not again releasing its hold until of considerable size and capable of voluntary exertion—a matter of weeks, sometimes months. Once so placed, the little one demands little attention, and to all intents and purposes is as much a part of its parent as during the period of gestation. It would seem to be incapable of again letting go its hold, as the muscles of the mouth at once contract so strongly about the bulbous portion of the nipple that even in death separation is effected only with some difficulty.

I have said that the wee marsupial is incapable of voluntary movement. This is so much the case that it has not the power to draw the nourishment from the maternal fount, or even swallow when once its mouth is filled; consequently, the mother is provided with a supernumerary muscle that, passing over the glands, compresses them at her will, forcing the milk directly into the little one's stomach, and at this time, too, Nature has wisely provided to prevent strangulation by elongating the larynx or windpipe to the nasal cavity, so that it is joined to and forms at once a part of the nostrils themselves, thus allowing breathing and feeding to go on simultaneously. When able to feed itself, this prolongation is gradually absorbed. As the youngster now approaches his more perfect form, his eyes are loosened from their bands and the tender skin is covered with a coat of hair, and he begins to act more like the offspring of other animals. Now his mouth is under control, and he can release himself and feed at will; and in the spirit of curiosity frequently puts his head out from the sheltering pannier to survey the surrounding world; and finally ventures therefrom in search of more solid food than that to which he has been accustomed, though still retaining the pouch as refuge when fatigued or shelter when threatened with danger. With some animals it is no uncommon affair to find young of different ages occupying the pouch at the same time—some almost ready to be emancipated, the others weak and imperfect creatures of recent birth.

It is strange that all the mammals of Australasia are marsupials, from the pygmy pitaroo and the haunting phalangiers up to the giant kangaroo. To the same class belongs the zebra or Tasmanian wolf, an animal far the most formidable, as it certainly is the most savage of indigenous quadrupeds. Too feeble and cowardly to successfully attack man, it is, nevertheless a terrible pest, committing serious ravages among all other creatures, irrespective of form or habits of life, the wombat alone excepted. No matter how hungry he may be, he will not touch this fat and sluggish marsupial, though, as it subsists on fruit alone, it would seem to be most edible. By no means swift or agile, and sneaking

and crawling in habits, the zebra wolf nevertheless manages to kill the kangaroo in defiance of its boasted leaping powers and powerful claws of its hind feet, and to secure the ornithorynchus, or common duck bill, in spite of its subterranean burrows and natatory habits. It does not even hesitate to seize upon and devour the prickly echidna, a much more formidable mouthful than any porcupine; and even prowls the sea shore searching for food among the heterogeneous masses flung up by the waves, renewed or added to by each succeeding tide. Shore crabs, which dot the beach in numbers after every flood, are caught with no little dexterity, and mussels and limpets are readily detached from the rocks, while the carcass of a seal or fish, or the body of a wild fowl, no matter how oily or fishy, serves as a tidbit. As quickly, however, had civilized man taken up his abode in Tasmania, the wolf became an object of dread, as poultry and domestic animals were never safe from its attacks. The sheep especially became the objects of the settler's anxious care, for no sooner were they introduced than a most unmistakable appetite was developed for mutton, seemingly preferring the flesh of that useful and easily mastered animal to that of any kangaroo, however venison-like, or bandicoot, howsoever savory.

In size this wolf approaches a large setter or Newfoundland dog, averaging perhaps a little more than five feet in length from snout to tip of tail, the latter appendage claiming a little more than one-third of the measurement; but specimens are sometimes killed that exceed this by half a yard; at the shoulders it is some twenty or twenty-two inches in height. The feet are protected on their bottoms by rough pads, and the toes, of which there are five on the fore feet and but four on the hinder ones, are all armed with short, straight, powerful claws. The head is very like that of a dog, the muzzle being long, narrow, and pointed, with a white, grizzled upper lip, sparsely sprinkled with a few black hairs, a few of which also ornament the cheeks and ridges above the eyes. The ears are sharp, pointed, erect, very broad at their base, and covered with hair both without and within; while the eyes are sharp, full, and black, and protected with a false or nictitating membrane like the owl, to shut out the unwelcome light of the sun, for it is nocturnal in habits, rarely venturing out during the day, but hiding in the recesses of the rocks among which it chiefly dwells. Of a general grayish-brown hue, mixed with yellow, banded above with a series of black stripes, which beginning at the shoulder diversifies the whole back to the tail, gradually increasing in length on the haunches and prolonged on to the thighs, it is this marking which gives rise to its many names of zebra, hyena, and tiger wolf.

There are several reasons why the animal is seldom exhibited in captivity. First, they are exceedingly sly and wary, and are hidden in dens most difficult of access, where daylight seldom penetrates, and where the female brings forth her young, four at a litter, remaining with them and supplied with food by her spouse until they are able to care for themselves. Second, when brought to bay by dogs, they fight with incredible fury, and yield only when torn in pieces. Again, the hatred of the settlers is so intense, that scarce any reward is sufficient to purchase the life of a captured animal.

Formerly they were quite prevalent in Tasmania; they would seem never to have been known on the continent of Australia, but by degrees the guns, traps, and poisoned baits of the settlers have prevailed, stimulated perhaps by the bounties offered; and the war of extermination has waged so fiercely, that the wolves have been driven from the haunts that once knew them, the few survivors being confined to the wildest and most inaccessible regions of the Humboldt Mountains and Hampshire Hills.

Preservation of Butter.

Dr. W. Hagemann has observed that cow butter contains 0.5 to 0.6 per cent of milk sugar, which under the influence of bacteria is transformed into lactic acid, and this liberates from the glycerides the acid, containing less carbon. It is obvious from this that summer butter becomes rancid more rapidly and strongly than winter butter, and that for the preservation of butter two methods may be adopted, viz., either the lower fat acids are removed by soda solution, as proposed by Adolf Mayer and Dr. Clausnitzer, or else the milk-sugar must be removed, or its decomposition prevented by suppressing the vegetation of the bacteria.—*Chem. Ztg.*

Treatment of Bulbs.

An ounce of nitrate of soda dissolved in four gallons of water, is said to be a quick and good stimulant for bulbs to be applied twice a week after the pots are filled with roots and the flower spikes are fairly visible. A large handful of soot, or about a pint, tied up in a piece of old canvas and immersed in the same quantity of water for a day or two, will give you a safe and excellent stimulant; also good and safe is a quarter of a pound of fresh cow-dung mixed in a large garden pot of water and used as required. Any of these stimulants will do good, as the whole of them applied alternately will benefit bulbs that need more sustenance than the soil affords.

Photograph of Comet's Tail and Stars.

Dr. Gill, at the Cape of Good Hope, succeeded in photographing the comet's tail and with it fifty stars that were seen through the tail. The plate was exposed 140 minutes, and was kept up to the motion of the earth by clockwork.